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AMPHIBIOUS OPERATIONS BATTALION IN ASSAULT LANDINGS

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DEPARTMENT OF THE ARMY FIELD MANUAL

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AMPHIBIOUS OPERATIONS BATTALION IN ASSAULT LANDINGS

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OFFICIAL:

EDWARD F. WITSELL
Major General, USA
The Adjutant General

J. LAWTON COLLINS
Chief of Staff
United States Army

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CHAPTER 1

GENERAL AMPHIBIOUS CONSIDERATIONS

1. PURPOSE AND SCOPE

a. This manual is a guide for the training of infantry battalions in the preparation and execution of amphibious operations. It covers the planning, organization, preparation of orders, embarkation, movement to the objective, ship-to-shore movement, the landing attack, role of supporting arms, supply and evacuation, and training of the infantry battalion for the assault of a hostile beach. It describes the duties and responsibilities of the battalion landing team's commanders and staff officers. Information on related naval and air operations also is included.

b. The principles stated in this manual apply to the planning and execution of any amphibious operation. Rigid adherence to technical details is avoided, because amphibious operations are a rapidly developing field. The actual situation at any time governs their use within the framework of the general principles.

2. AMPHIBIOUS OPERATIONS

a. Definition. An amphibious operation is a landing made from ships or craft to achieve an objective on land (fig. 1). The forces involved depend primarily upon waterborne means for transport to the

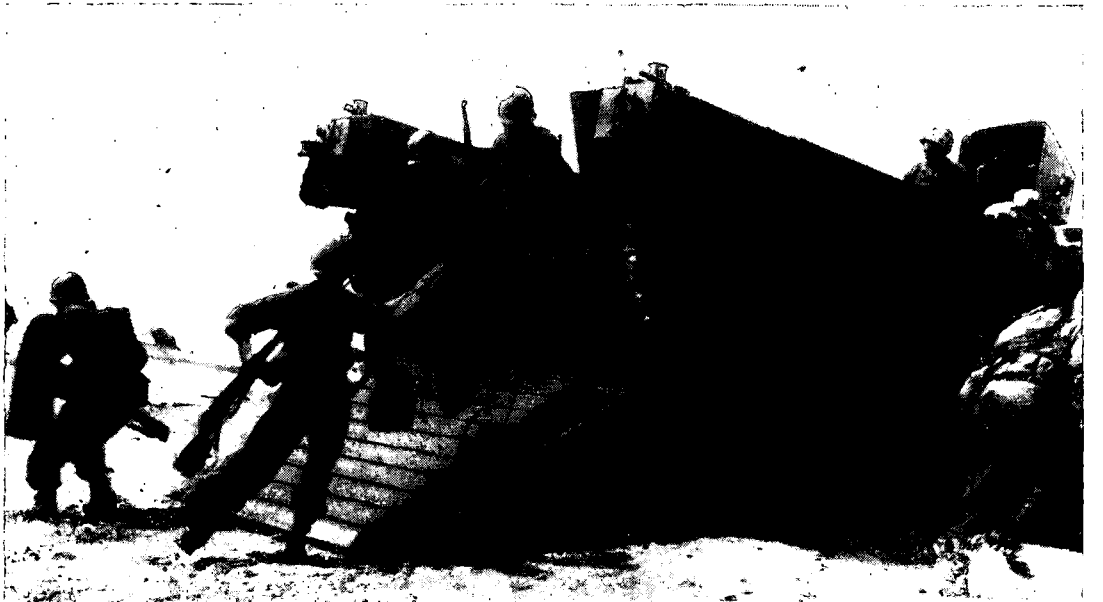


Figure 1. Troops disembarking in an amphibious landing from an LVT.

objective area, for initial tactical and logistical support, and for special techniques and equipment used in debarking.

b. Nature of an Amphibious Operation. An amphibious operation includes preparation of the objective for the landing and operations of the forces involved in over-water movements, assault, and support. It is a joint operation when the assigned forces are composed of significant elements of more than one service of the Department of Defense. An amphibious operation usually involves the following:

(1) The preparation of plans and the training of attack force units for the particular operation.
(2) Movement of forces to the objective, and their protection and support by naval and air operations.
(3) Preparation of the objective for the landing.
(4) Landing troops, equipment, and supplies over a beach, and seizure of the objective.
(5) Support of the landing and operations ashore by naval gunfire and air bombardment.
(6) Landing and build-up of additional supplies, equipment, and troops as required for logistical support and further operations.

3. PURPOSE OF AMPHIBIOUS OPERATIONS

Amphibious operations have one or more purposes—

a. Invasion. An invasion is a large scale operation to seize and secure a beachhead from which to launch and support a major land offensive such as

the Normandy, Southern France, and Lingayen operations in World War II.

b. Occupation. An occupation is a limited objective operation to seize and secure a land area for use as an air, naval, or logistic base to support further operations, or to deny use of the area to the enemy. Examples include the Admiralty Islands, Bougainville, and Iwo Jima operations in World War II.

c. Raid. A raid is an operation, usually small scale, involving the temporary seizure of a limited objective, or a swift penetration of hostile territory to secure information, confuse the enemy, or destroy his installations. It ends with a planned withdrawal upon completion of the assigned mission. Examples include the Dieppe, Narvik, and Makin Island operations in World War II.

d. Demonstration. A demonstration is an operation designed to confuse the enemy, to delay or reduce the effectiveness of his dispositions, and to cause him to commit his reserves against the demonstrating force. When the demonstrating force is capable of landing in enough strength to exploit a favorable situation, this operation is termed a *demonstration in force.* Otherwise, the landing force conceals its real strength to produce the desired effect.

4. TYPES OF MOVEMENT

Amphibious operations are classified as either ship-to-shore, shore-to-shore, or a combination of both.

a. The term *ship-to-shore* describes any operation requiring the transfer of troops, supplies, and equip-

ment from the transports or other oceangoing vessels into smaller landing craft or landing vehicles for movement to the beaches.

b. The term *shore-to-shore* describes the movement of the landing force elements directly from the embarkation area to the landing beaches without transfer at sea.

c. Amphibious operations often may involve both types of movement. Regimental combat teams and battalion landing teams often use shore-to-shore operations in subsidiary interisland or sea-borne flanking operations.

d. Amphibious shore-to-shore techniques also may be used for special operations on navigable rivers and lakes. These operations may or may not have naval support.

(1) River crossings involving wide or swift rivers or other special conditions may employ such techniques.

(2) A land campaign involving the use of navigable waters in the interior of a large land mass may use such shore-to-shore techniques as apply, to transport troops, equipment, and supplies. This will assist in achieving tactical mobility for mounting a series of penetrations and envelopments to accomplish the destruction of less mobile enemy forces.

5. CHARACTERISTICS OF AMPHIBIOUS OPERATIONS

a. An amphibious operation has a great shock effect on an enemy. The attacker exploits this initial

paralyzing effect to land the force needed to accomplish his assigned mission.

b. An amphibious operation is offensive in character; the initiative is with the attacker. His choice of objectives and lines of approach is limited only by his commander's directives, his mission, the enemy, the weather, the terrain and sea approaches, and the supporting capabilities of naval and air forces. Tactical surprise may be achieved through the use of mobility and appropriate counterintelligence measures. Mobile floating reserves permit him to exploit rapidly his successes ashore.

c. The attacker also considers the unfavorable characteristics of amphibious operations:

(1) The number and types of vessels to transport his force are limited. This affects the strength, composition, equipment, and supplies taken in with the assault.

(2) While aboard vessels, troops are particularly vulnerable to enemy air, sea, and shore weapons.

(3) Suitable landing beaches may be limited, and the attacker may have to select unfavorable beaches where obstacles and enemy defenses exist.

(4) During the initial assault, the attacker must depend mainly on naval gunfire and air support.

(5) The types and number of supporting aircraft and naval fire support ships and craft may be limited.

(6) The troops land and fight over unfamiliar terrain where information of the enemy defenses often is meager.

(7) Changing conditions may require a quick change of plans and the landing of troops on alternate beaches.

(8) The troops may be seasick when they land.

(9) Ships carrying essential troops and cargoes may be lost because of enemy action.

(10) Unfavorable weather, heavy surf, or tides may prevent landing or cause serious delays in the schedule.

(11) The enemy may use chemical, biological, or radiological agents on the landing area either before or during the landing.

(12) Initially, supporting arms and services may be able to function only in a limited manner, increasing the difficulties of control, supply, and communication.

(13) Supplying the landing force in the objective area is limited by the ability to keep sea and air lanes open.

6. ORGANIZATION

Army units are organized to make the initial assault, to aid the debarkation of combat units, to provide maximum fire power until normal artillery support is available, to provide mobility of the initial assault units ashore, and to provide the continuous logistical support of landed units. Similarly, naval units are organized to embark, convoy, and debark army forces and to provide effective naval gunfire support until artillery units are established ashore.

Air Force units are organized to give adequate air protection, reconnaissance, and offensive action during the operation.

7. NEED FOR SPECIAL EQUIPMENT

a. Amphibious operations require special equipment. The tactics and technique of landing operations are limited largely by the availability of adequate and suitable ships, landing craft, vehicles, weapons, and other special assault equipment (fig. 2).

b. The mission, the terrain in the objective area, and the enemy defenses dictate the requirements for special equipment; the capacity of available shipping limits the variety and quantity taken.

c. The special equipment needed to move troops and matériel ashore depends on the type of beach and its approaches, the beach defenses, the underwater obstacles, and the tide and surf. It also depends on the requirements for breaching beach obstacles, for crossing terrain obstacles, for the initial close support of assault units, and for the logistical support of those units once they are ashore.

8. PHASES OF AMPHIBIOUS OPERATIONS

An amphibious operation is divided into four general phases. The phases are preparatory, movement, assault, and final.

a. Preparatory Phase.

(1) The preparatory phase includes all planning, training, rehearsals, mounting, embarkation, and such "softening-up" actions

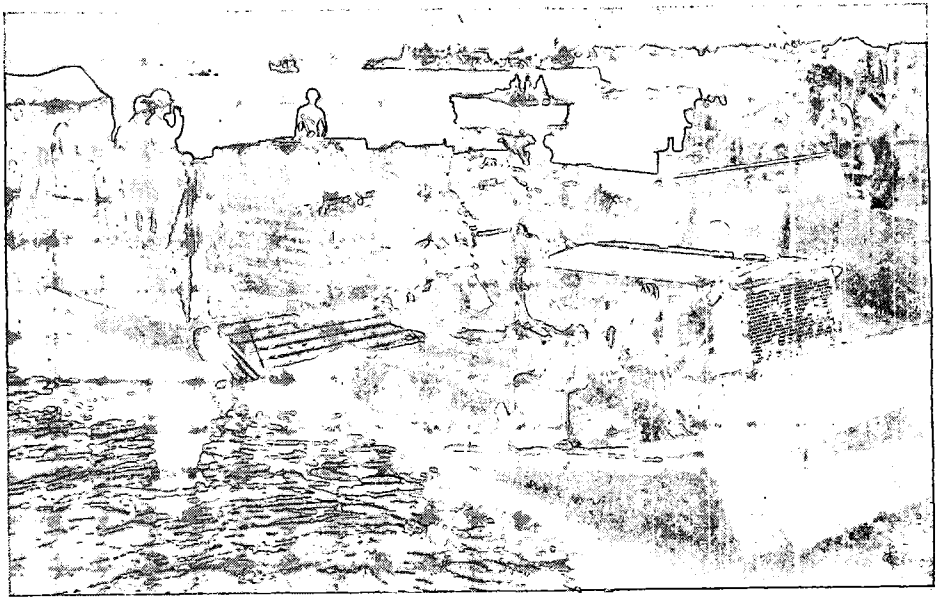


Figure 2. Loaded pallets containing ammunition being towed from an LCM by a bulldozer on a Saipan beach.

as may be taken in connection with the operation.

(2) The interest of all three services is equal during this phase. The authority constituting a joint force will provide for the control or coordination of this phase when no joint force commander has been designated to control the entire operation.

b. Movement Phase.

(1) The movement phase begins with the completion of embarkation of the amphibious forces and ends with the beginning of the assault.

(2) During this phase control is exercised by or through the senior naval commander.

c. Assualt Phase.

(1) The assault phase begins when the Navy or Air Force components of the joint force are in a position to support the Army assault forces and ends with the establishment of the force beachhead. During the assault phase, control is exercised by or through the senior army commander.

(2) Each action of the supporting services must be planned and executed to facilitate the assault.

d. Final Phase.

(1) The final phase of the joint amphibious operation begins with the end of the assault phase. It ends when the normal logistical services of the Army and Air Force are established ashore. This phase includes seizure of the objective, unless it is included within the beachhead, and logistical opera-

tions involved in consolidation of the objective.

(2) Plans must be made by the Army, Navy, and Air Force for continuing mutual tactical and logistical support throughout this phase.

(3) During this phase, control is exercised by or through the senior army commander.

9. PATTERN OF AMPHIBIOUS OPERATIONS

Amphibious operations against defended shores resemble the following pattern:

a. Prelanding Operations.

(1) Air and naval reconnaissance of the objective area including visual, sonic, photographic, and electronic reconnaissance.

(2) Preliminary air and naval bombardment of the objective area.

(3) Mine sweeping and underwater demolition operations in the landing area by naval forces supported by air and naval gunfire.

(4) Prelanding naval gunfire and air bombardment of the objective area immediately before the landing.

(5) Seizure of outlying islands before D-day for use as logistic, air or seaplane bases, radar warning stations, or position areas for supporting artillery, where assistance gained by such action will outweigh the tactical surprise lost.

(6) Psychological warfare, sabotage, and subversive and espionage activities in the objective area.

(7) Demonstrations outside the designated landing area; for example, naval bombardment of enemy defenses in another area to draw enemy attention away from the planned assault area.

b. Landing.

(1) Arrival of the joint expeditionary force in the landing area.

(2) Intense pre-H-hour naval gunfire and air bombardment of the objective area.

(3) Debarkation of assault troops from ships into landing craft and landing vehicles, their formation into waves, and movement across the line of departure to the beach. Naval and air bombardment of shore targets continues until the last stage of this movement.

(4) As the leading waves near the beach, naval gunfire lifts to inland and flanking targets; air units make final strafing runs on beach defenses; and supporting craft take over close supporting fire missions.

(5) The assault waves land, breach beach obstacles, overrun beach defenses, and destroy local enemy forces and installations. Mobile reserves are kept afloat.

(6) The force ashore is rapidly built up by committing reserves to exploit success where the advance is most rapid.

(7) The assault platoons and companies quickly reorganize, repulse local counterattacks, and seize initial objectives. Close support by air and naval gunfire begins when artillery

forward observer parties and tactical air control parties land and establish communication.

(8) Initial equipment and supplies are landed and shore organization begins.

(9) When the initial assault tasks are accomplished, the advance continues to secure the beach from enemy direct and ground-observed indirect fires. Shore organization continues.

c. Consolidation.

(1) Assault battalion beachhead lines are secured. Additional troops, equipment, and supplies are landed; organized counterattacks are driven off; and battalion beachheads are consolidated.

(2) Battalion beachheads are expanded to seize regimental objectives and to prevent observed artillery fire from being placed on the beach. Regimental reserves are landed and shore installations are consolidated.

(3) Regimental beachheads are expanded, division reserves are landed, and division objectives are seized.

(4) Shore installations are consolidated by the division shore party as more supplies and equipment are landed.

(5) If continuing land offensives follow, port and beach developments begin. Additional reinforcements arrive, base installations and airfields are established, and the land offensive resembles a normal land campaign. Naval gunfire continues throughout the con-

solidation and until the land offensive goes beyond the range of the guns. Air support continues initially by long-range and carrier-based aircraft and later by planes operating from fields prepared in the objective area.

10. GENERAL DOCTRINE

a. Amphibious operations are conducted according to the principles described for land operations in FM 100–5. The following general doctrine is particularly applicable to amphibious operations:

(1) *Unity of command is mandatory.* Positive over-all command of all ground, sea, and air forces involved in an amphibious operation is vested in one commander.

(2) *Accurate, timely, and comprehensive intelligence is the basis for planning amphibious operations.* This joint intelligence not only includes intelligence of the terrain and enemy forces that may be encountered, but it also includes intelligence of weather and hydrographic conditions in the objective area.

(3) *Superiority of force, including naval and air superiority at the time and place of landing, is mandatory.* The landing force can develop its offensive power only after it is successfully landed with its tactical and logistical support.

(4) *Each amphibious task force is organized, equipped, trained, and rehearsed specifically for the task it is to perform.* Political, geo-

graphical and hydrographical conditions vary as do the strength, composition, and dispositions of the enemy.

(5) *Surprise is continually sought.* As a rule, when attacking large land masses, strategic surprise is difficult to obtain, but tactical surprise is gained by deceiving the enemy as to the time and place the main-landing force will be committed. In attacks against small islands or atolls, tactical surprise is difficult to obtain and the operation is designed to isolate and overwhelm the enemy garrison.

(6) *Plans and orders are complete, simple, flexible, and detailed.*

(7) *Administrative and tactical plans are developed concurrently by all commanders; the over-all administrative plan adequately supports the tactical plan.* These plans provide for placing key personnel, critical supplies, and equipment throughout the assault convoy while still maintaining the tactical unity of the command.

(8) *All ships in the assault echelon are combat loaded.*

(9) *Effective control and communication are secured and maintained.* Standard chain-of-command communication is supplemented by special nets and systems.

11. OPERATIONAL PRINCIPLES

The primary purposes of a joint task force in an amphibious operation are to land, support, and sup-

ply an effective fighting force to accomplish its assigned mission. In this type operation the following tested operational principles apply in attaining maximum results with minimum losses.

a. Every assault force element is assigned specific missions. Initially, the whole assault force is disposed to produce the maximum firepower and mobility in the landing attack.

b. The over-all operation is built around assault battalion landing teams designated to land on single beaches or at fixed points on the shore line.

c. Landing beaches are chosen after joint consideration of sea approaches, beach gradients, general beach and inland terrain, beach defenses, beach exits, surf and tidal conditions, and the future use to which the beaches will be put. Pending the opening of ports and airfields, the capacity of the beaches must be adequate to logistically support the landing force.

d. The time of landing is carefully considered. The element of surprise is weighed against the ability of the Navy and Air Force to support the landing. The strategy in the theater, combat efficiency of the troops, navigation difficulties, and predicted weather and hydrographic conditions also are considered.

e. The assault battalion landing teams are reinforced with adequate supporting weapons, supplies, and services to seize initial objectives.

f. Supporting weapon units land as early as possible to strengthen the fire power ashore.

g. Successive assault waves are mutually supporting and are timed to prevent congestion of troops or defeat in detail on the beach.

h. Each boat team is organized as a small task force

with enough combat strength to fight to its objective without regrouping. Men in the assault boat teams take only the equipment needed for sustained action.

i. To permit their early withdrawal, plans provide for continuous and rapid unloading of ships and craft in the objective area.

j. Specially trained and equipped units are used to organize and operate beach support areas.

k. Adequate quantities of ammunition and other supplies are made available to support the landing plan.

l. When the assault landing precedes a major land offensive, plans provide for adequate vehicles, fuel, and supplies to exploit initial success.

m. Detailed alternate plans are prepared before sailing. Such plans provide for any development arising en route and during the landing. These include adverse weather and surf conditions, the loss of ships and craft, and changes in the enemy situation. These plans are based on the loading plan for the principal operation and the restricted communication afloat.

CHAPTER 2
ORGANIZATION

12. DIVISION ORGANIZATION FOR AMPHIBIOUS OPERATIONS

a. The special organization of army units taking part in an amphibious operation is based, to an extent, on naval capabilities for transporting and supporting the landing force. A close relationship exists between the organization of all landing force elements and their related naval elements.

b. The reinforced infantry division is the basic large army unit which can be especially trained and equipped for amphibious operations. It usually lands as part of a reinforced corps. Attachments to support the infantry division may include—

(1) A division shore party, organized, equipped, and trained to develop the beach area.
(2) One or more antiaircraft artillery groups.
(3) One or more field artillery groups.
(4) One or more combat engineer battalions.
(5) One or more amphibious tank battalions.
(6) Two or more amphibious tractor battalions.
(7) Two or more amphibious truck (DUKW) companies.

c. The reinforced division is organized into three regimental combat teams (RCT's). Each is supported by a part of the reinforcing arms and services, including a regimental shore party that is attached to or directly supports each RCT.

d. Each RCT is further divided into three battalion landing teams (BLT's). Each BLT is supported by or has attached to it a limited part of the reinforcing arms and services.

13. BLT ORGANIZATION

a. The BLT is the basic assault unit of a landing force. It consists of a standard infantry battalion reinforced with elements from regiment and higher echelons. The BLT is commanded by the infantry battalion commander. It may be embarked on an assault transport (APA), on landing ships, or on a combination of vessels depending on its composition and mission. See appendix II for landing craft characteristics.

b. The BLT is a small task force that functions independently during the first part of the landing. The ultimate success of any landing operation depends largely on the success of the assault BLT's. The BLT is organized to land, overrun beach defenses, and secure terrain objectives.

c. Since initial fire support is primarily obtained from supporting ships and aircraft, the BLT must have additional fire support attachments to assist in accomplishing its mission. Not only combat units, but also logistical elements are attached to provide essential supplies until normal supply installations are established ashore.

d. Many factors determine the attachments to the infantry battalion to form a BLT. They include—

(1) *Mission.*

(*a*) Knowing his battalion's mission, the BLT commander can determine what at-

tachments he needs to accomplish it. He selects the tools to do the specific job rather than building a well-rounded organization capable of accomplishing any mission.

(*b*) An assault BLT's mission requires it to have adequate combat power to be entirely self-supporting until it can reorganize and be supported by later landing support units.

(*c*) A BLT in regimental reserve not only is organized to land and exploit the success of either assaulting BLT, but it also is prepared to take over the mission of either assaulting BLT.

(*d*) A BLT may make a feint as part of a demonstration force, land as part of a diversionary force, or seize an island or area in support of the main landing.

(2) *Enemy situation.* A thorough study of the enemy defenses opposing the BLT may indicate the need for additional attachments. For example, an area strongly defended with permanent fortifications, pillboxes, and block houses may need assault engineers and tanks. Beach defense guns capable of firing on incoming boat waves may require the attachment of amphibious tanks (LVT(A)'s) to furnish close supporting fires during the landing. The presence of enemy mechanized units within the landing area requires the attachment of tanks. A beach heavily mined or protected with

barbed wire or other artificial obstacles indicates the need for engineers. If the enemy has used chemical, biological, or radiological agents, chemical troops with special equipment may be needed.

(3) *Terrain and hydrographic conditions.* The terrain in the BLT sector, including the beach and it approaches, may dictate additional attachments. For example, if a reef or shoals front the beach, the BLT commander requires amphibious tractors (LVT's) to take his elements ashore (*fig.* 3). Likewise, the same type vehicles are required to ferry troops across water obstacles or swamps behind the beach. Should cliffs bar the exit from the beach proper, troops specially trained to scale these cliffs may be required.

(4) *Available shipping.* Another important factor in determining the BLT organization is the shipping assigned to transport it. The BLT commander and staff have a difficult problem in fitting the BLT and all its equipment and supplies into the assigned ship or ships. This requires a careful determination of what is to be taken in the assault echelon.

(5) *Availability of attachments.* In some instances, the requested attachments will not be available. Then the BLT commander requisitions special equipment and trains his own troops to perform special tasks; for example, he may train demolition teams, gap assault teams, and scaling teams.

Figure 3. LVT's assisting assault troops to cross a coral reef.

14. TYPICAL BATTALION LANDING TEAM

a. The BLT is organized to perform the specific missions assigned; a typical BLT may include—

(1) Infantry battalion.
(2) Battalion section, regimental service company.
(3) Tank platoon, regimental tank company.
(4) Mortar platoon, regimental mortar company.
(5) Engineer platoon, division engineer battalion.
(6) Artillery liaison and forward observer party, light field artillery battalion.
(7) Medical platoon, regimental medical company.
(8) Collecting detachment, collecting company, medical battalion.
(9) Tactical air control party.

b. Additional units may include amphibious tanks, amphibious tractors, amphibious trucks; field artillery, antiaircraft artillery; engineer combat and service elements; and chemical, medical, and other arms and services. In addition, accompanying personnel may include reconnaissance parties or liaison personnel from units to follow, observers from higher units, war correspondents, and press photographers.

15. EMBARKATION TEAM

Division and regimental commanders hold supporting units afloat, to be used as they are needed ashore. These units—for example, tanks, artillery, and shore party elements other than those attached

to the BLT's for the landing—may be embarked on the ship transporting the BLT. Thus, the BLT commander may have troops on his ship that are attached for transportation only. The term embarkation team is used to designate all troop units embarked on a single transport. The BLT commander normally commands the embarkation team during the sea voyage; his tactical command is limited to his BLT. A typical embarkation team follows:

EMBARKATION TEAM	BLT UNITS	3d Bn, 1st Inf
		3d Plat, Tk Co, 1st Inf
		3d Plat, Mort Co, 1st Inf
		3d Plat, Co A, 1st Engr C Bn
		3d Plat, Med Co, 1st Inf
		Det Coll Co, 1st Med Bn
		FA Ln Party and Fwd Observer, 2d FA Bn
		Naval Gunfire Ln Party
		TACP #6
		Shore Party Personnel
		Det Comm Plat, Hq Co, 1st Inf
		Det Svc Co, 1st Inf

UNITS ATTACHED FOR TRANSPORTATION ONLY	Recon Party, Co A, 1st Eng C Bn
	Recon Party, Tk Co, 1st Inf
	Det Hq Co, 1st Inf
	Det 21st Tk Bn
	Intel & Recon Plat, 1st Inf
	IPW Team #8

16. COMMANDING OFFICER OF TROOPS AND COMMANDING OFFICER OF THE SHIP

The CO of troops commands all troops of the embarkation team aboard the ship in matters relating to troop administration during the voyage, including such activities as quartering, messing, guard, and physical training. None of his actions impairs the authority of the commanding officer of the ship over the vessel and all persons embarked on it. So far as practicable, orders from the commanding officer of the ship to the troops are transmitted through the CO of troops.

17. BLT DURATION

The BLT is a tactical organization designed to spearhead the landing assault. Attachments to the battalion assist the landing and establishment ashore. Orders from regiment specify when attached units revert to parent organizations or to the control of higher commanders.

CHAPTER 3

PLANNING

Section I. GENERAL PLANNING PRINCIPLES

18. PLANS ARE DETAILED AND ARE STARTED EARLY

As the success of any amphibious operation depends largely upon the initial success of the assault battalions, thorough and detailed plans are prepared by each assault BLT commander. The planning is started long before D-day. However, since the enemy situation may change considerably before D-day, changes may be required in the plans of both the BLT commander and the higher commander. Once the troops are embarked on separate ships, changes in plans are extremely difficult to effect unless a previously prepared alternate plan is to be used.

19. COORDINATION OF PLANNING

a. In all stages, planning is carefully coordinated at all echelons. The BLT commander and appropriate members of his staff are briefed as soon as practicable after the regimental commander has received the directive for the operation.

b. Normally, a division scheduled for an amphibious operation establishes a divisional planning headquarters. Regimental staff officers are attached to this headquarters to help work out the plans. Liaison with the Navy and Air Force also is maintained

by representatives of these services at division planning headquarters.

c. Frequent conferences are held with Navy and Air Force representatives and other supporting units to iron out differences, coordinate details, and secure mutual information for the development of plans.

d. When the BLT commander is required to establish a separate planning headquarters, his liaison officers coordinate with the supporting service representatives at division headquarters. Attached unit commanders, working with the BLT staff, coordinate the plans for their units.

20. SEQUENCE OF PLANNING

a. The major elements of the BLT tactical plan usually are developed in the inverse order of their eventual execution. This means that first the BLT commander studies his assigned mission. Based on this mission and on a thorough study of the weather and the terrain over which the BLT will fight, plus intelligence reports on the enemy in his sector, he determines what attachments and supporting fires he will need. (Shipping allotted to his BLT normally will limit these attachments.)

b. Next, he determines the scheme of maneuver ashore that will best accomplish his mission, using all supporting fires to the maximum. Then, he is ready to devise the landing plan of how, where, and when BLT elements will land to carry out that scheme of maneuver. This landing plan is based on the number and types of available landing craft.

c. Finally, he prepares his loading plan to fit the landing plan.

d. He plans the final training according to the over-all plan of assault. This training is conducted concurrently with operational planning.

21. DETAILED ALTERNATE PLANS ARE PREPARED

a. As the basic plans for an amphibious operation are prepared weeks and sometimes months before D-day, and since many conditions develop between the time the plans are firmed and the actual landing, alternate plans are prepared. For example, a BLT in regimental reserve plans for its possible use in the assault.

b. These plans are complete in every detail, and all lower unit commanders are thoroughly familiarized with those details.

22. PLANS ARE FLEXIBLE

a. All plans are kept flexible and capable of quick change. Alternate plans for landing the reserve company and other supporting elements are prepared. Flexibility is achieved also by planning to hold certain supporting elements aboard ship or in landing craft to be landed on call.

b. Alternate plans for the advance from the beach to the RCT beachhead line are prepared to achieve further flexibility in the attack.

Section II. INTELLIGENCE PLANNING

23. INTELLIGENCE AGENCIES AND REQUIREMENTS

a. The organic BLT intelligence agencies are not able to collect information for the BLT commander to use during his planning, so he relies on higher com-

manders to supply him with both information and intelligence.

b. When the BLT commander is given his mission, he makes a careful study of the available intelligence. He determines any additional facts that he will need and promptly requests them from higher commanders. The BLT commander plans to follow normal intelligence procedure once his team is established ashore. Intelligence specialist teams may accompany the BLT ashore and work with the BLT until the regimental headquarters is set up and functioning. Such teams may include the prisoner of war interrogator team, the translator team, the interpreter team, and the order of battle team. The purpose of early landing of intelligence specialist teams is to facilitate the prompt exploitation of captured documents, prisoners of war, and natives for intelligence purposes.

24. DISSEMINATION OF INTELLIGENCE

a. The BLT commander uses the time en route to the objective (and necessary additional time) to disseminate intelligence. The BLT intelligence officer procures adequate special equipment to disseminate intelligence and to brief the troops. These include maps, air photos, rubber or plastic terrain models, and blackboards.

b. Since the security of an amphibious operation often determines its success, only those authorized are permitted to attend staff conferences. Adequate physical security is provided for the BLT headquarters and the briefing aids to be used aboard ship.

c. Only certain BLT staff members need informa-

tion and intelligence early in the planning phase. Before embarkation, staff officers and commanders are given only the essential information needed to complete their part of the plan. After embarkation every team member is thoroughly informed of the over-all plan and mission of the command, the detailed plan and mission of the BLT, and all pertinent intelligence of the enemy, weather, and terrain (par. 121*d*).

Section III. OPERATIONAL PLANNING

25. HIGHER COMMANDERS ISSUE DETAILED ORDERS

a. Normally, orders from higher commanders are much more detailed for an amphibious operation than for a land operation. The BLT commander does not have as much latitude in the preparation of his own plans because—

(1) In land operations the infantry battalion is in contact with the enemy and has more intimate knowledge of the terrain and enemy disposition than do the higher commanders. The battalion commander has a clearer picture of the local tactical situation; therefore, he is encouraged and required to use his own initiative. In amphibious operations, the higher commanders have a more thorough and detailed knowledge of the terrain and the enemy because of long-range reconnaissance agencies not available to the BLT.

(2) Higher commanders have access to all available planning aids and have especially quali-

fied personnel to use these aids. On the other hand, the BLT does not have on its staff trained specialists in aerial photograph interpretation, air support, naval gunfire, and other specialized fields.

(3) To integrate smoothly the ship-to-shore movement, air support, and naval gunfire, the execution and coordination details are prescribed by higher commanders.

b. The initial orders from the regimental commander provide the following details:

(1) Date and hour of landing expressed as D-day and H-hour.
(2) Beach upon which the BLT will land.
(3) Time each assault wave will land.
(4) Priorities for landing personnel in the second trip of boats.
(5) Transport and rendezvous areas, line of departure, and boat lanes to the beach.
(6) Zone of action and initial objectives ashore.
(7) Naval gunfire and air support available to the BLT.
(8) Shore party and logistical support.
(9) Composition of the BLT and the embarkation team.
(10) Alternate plans.

c. Regimental orders often include the BLT's landing formation and the composition of each wave.

d. For preparation of the BLT operation plan and order, see paragraphs 80–91.

26. BLT MISSION

The mission assigned to an assault BLT usually includes the prompt seizure of terrain objectives. In addition, the BLT protects the landing of subsequent echelons by destroying enemy direct-fire weapons that could effectively fire on the beach. Resistance must not be bypassed. The extreme vulnerability of embarked troops during their approach to the beach and subsequent debarkation dictates this type of mission. This mission requires the BLT to advance rapidly to a prescribed regimental beachhead line, probably with a temporary pause for coordination and reorganization on a battalion beachhead line.

27. BLT OBJECTIVE

The regimental commander generally establishes the BLT beachhead line along some clearly defined inland terrain feature, the seizure of which protects the beach from aimed small arms and ground-observed artillery, mortar, and rocket fire. The BLT commander assigns intermediate terrain features or parts of this line as company objectives. Usually, the regimental beachhead line assigned by the division commander is selected to prevent light artillery fire from being placed on the beach.

28. HYDROGRAPHY, WEATHER, AND TERRAIN

a. Favorable landing conditions may not exist over the entire beach frontage assigned to a BLT. A detailed study of the local beach conditions and approaches is made by the BLT commander and his

staff to determine the actual extent of practicable landing area. This is accomplished by a thorough study of air photos, maps, hydrographic charts and sketches, and intelligence, weather, and reconnaissance reports.

b. The BLT commander, in his evaluation of the weather and of his assigned zone, particularly notes and evaluates—

(1) *Small islands or promontories* that command the seaward approach, particularly those permitting enemy enfilade fire along the beach itself.

(2) *Beach exits and obstacles* to the advance inland.

(3) *Inland critical terrain features* from which the enemy can observe and dominate the landing area.

(4) *Avenues of approach* into the enemy position, considered in relationship to the BLT objective.

(5) *Observation, cover and concealment, soil trafficability, and fields of fire* as they affect both his own troops and the enemy.

(6) *Defiladed areas* from which indirect fire can be placed on the beach and where enemy reserves may assemble.

(7) *Enemy routes* to and within the beach positions.

29. ENEMY SITUATION

Concurrently with a thorough evaluation of weather and terrain, the BLT commander and his staff study the enemy situation as it affects the

assigned beach. The commander determines the following:

a. Enemy dispositions in the beach area.

b. Defensive fire plans.

c. Strong and weak points in the enemy beach defenses.

d. Defended critical terrain features or areas that must be seized to further the attack and to protect the landing of subsequent echelons.

e. What enemy positions deny avenues of approach from the beach into the enemy position.

30. EFFECT OF PLANNED SUPPORTING FIRES

a. The plans of higher commanders include supporting air and naval gunfire within the zone of each assault BLT. These plans are prepared to support the whole landing force and may limit the BLT's freedom of maneuver within its zone. The BLT commander promptly recommends necessary modification of the planned supporting fires to the regimental commander.

b. The preliminary air and naval bombardment in the objective area has a great destructive effect on installations and routes of communication. Periodic visual and photo reconnaissance will show the effectiveness of these fires. Prelanding fires concentrated on located and probable defenses, installations, and troop concentrations in the immediate beach area likewise result in considerable damage and destruction. While these fires may drive the enemy away from the immediate beach area, they may also place obstacles in the way of the assault troops.

31. PLAN OF ATTACK

The assault BLT's general plan of attack consists of the landing plan, the plan of supporting fires, and the scheme of maneuver ashore. These plans are interdependent and require simultaneous consideration and preparation. Necessary compromises are made in either the landing plan or the plan of supporting fires to assure the tactical success of the scheme of maneuver.

32. SCHEME OF MANEUVER ASHORE

a. The scheme of maneuver ashore is the tactical plan the BLT will execute to accomplish its mission. In establishing this scheme of maneuver, primary consideration is given to the immediate seizure or neutralization of critical terrain features flanking the beach and its approaches. If such features lie partially within the zones of adjacent landing teams, their seizure is coordinated by the regimental commander.

b. Although the seizure of these critical features is of primary importance, extensive flank movements by elements of the first wave are undesirable, since they may cause a shift in the direction of the assault. If a critical area can be kept neutralized by fire or smoke, its reduction is assigned to a specific unit landing in a subsequent wave.

c. Next in importance is the provision for the seizure of inland terrain features blocking the rapid advance of the BLT. The BLT commander selects and designates all such features and assigns their capture to specific units (fig. 4).

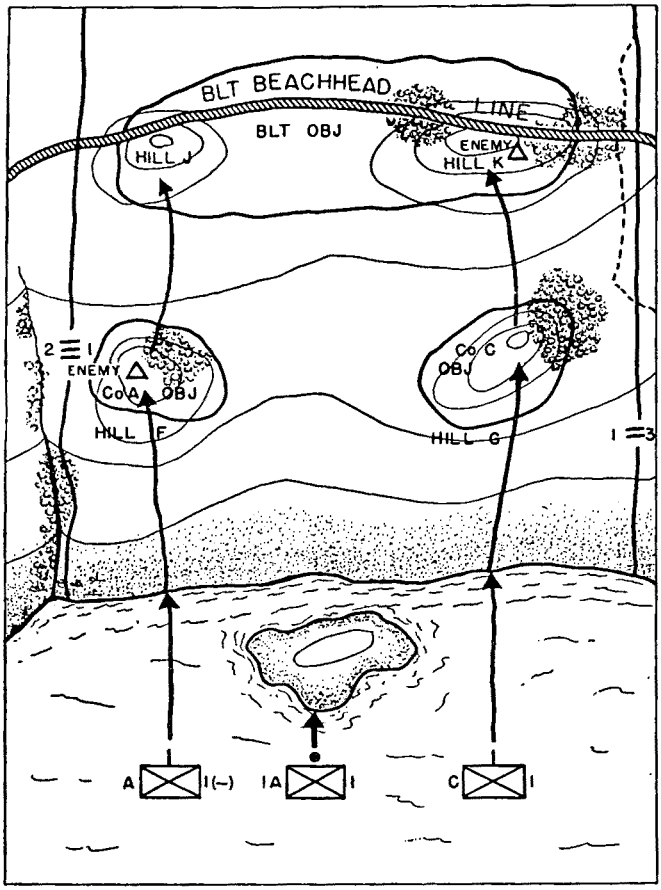


Figure 4. Critical terrain features are the objectives.

d. The seizure of the BLT objective climaxes the scheme of maneuver. The plan provides for a coordinated assault on this objective, assisted by all

supporting weapons. In planning this phase of the assault, the BLT commander makes sure that—

(1) The actions of all elements can be coordinated in time and space.
(2) The BLT reserve will be ashore in time to participate in the final assault.
(3) All essential supporting weapons can be in position to support the attack.
(4) Liaison is established with supporting units.

33. LANDING PLAN IS BASED ON SCHEME OF MANEUVER

After the BLT commander has determined the scheme of maneuver, he considers how he will bring ashore his landing team elements. In general, a formation is adopted that—

a. Uses the widest frontage within the battalion zone of action allowed by the hydrographic conditions. This increases dispersion, assists deployment ashore, and increases the shockpower of the initial assault by placing the maximum combat strength on the beach at H-hour.

b. Provides for the timely landing of supporting troops and weapons, and for the maneuver and landing of the BLT reserve at the time and place desired by the BLT commander.

34. LANDING FORMATION, FRONTAGES, AND DISTANCES ARE PLANNED IN DETAIL

a. In amphibious operations the terms "distance" and "interval" have a special meaning when referring to ship and boat formations. *Distance* is the

space between adjacent individual ships or boats, measured in any direction. *Interval* is the space between adjacent groups of ships or boats, measured between corresponding vessels in adjacent groups in any direction. Formations, frontages, and distances within a boat group are governed by the following:

(1) Mission and scheme of maneuver of the embarked troops.
(2) Need for maintaining tactical integrity of units and for landing them in planned tactical formations.
(3) Extent and type of beach opposition.
(4) Types of landing craft used.
(5) Extent of the beach and form of the beach line.
(6) Vulnerability of the formation to the fire of enemy weapons and to enemy aircraft.
(7) Time supports and reserves are scheduled to arrive.
(8) Congestion of landing craft and troops on the beach.

b. The assault *rifle platoon* normally lands in a single echelon. It usually is boated in two or three landing craft in the same wave, either in line abreast or in an inverted V formation.

c. The rifle platoon lands on a frontage of 100 to 200 yards. To cover the entire platoon front with fire and to make sure that all enemy weapons on the beach are engaged immediately upon landing, the landing craft are uniformly distributed over the assigned front. The distance between craft is from 40 to 70 yards. Reduced visibility or a narrow beach may cause a decrease in this distance, but is kept wide

enough to prevent damage to more than one craft by a single bomb or projectile and to permit full deployment of the troops without congestion on the beach.

d. The *rifle company* usually lands on a frontage of 250 to 500 yards. It may land in any of the following formations:

(1) *Two platoons in assault.* In this formation the two leading platoons, usually accompanied by some supporting weapons, make up the first wave of the assault. The support platoon, company headquarters, and the rest of the supporting weapons normally make up the second wave. The support platoon follows the leading wave at enough interval to let the assault platoons clear the immediate beach of the enemy. The landing of the second wave is scheduled to provide timely support to the platoons of the assault wave, the time interval varying from 3 to 12 minutes.

(2) *One platoon in assault.* In this formation one platoon lands in the first wave. The other two land abreast in the second wave. The leading platoon may be assigned the task of clearing the immediate beach of enemy resistance, and of securing enough ground to protect it from close observation and small arms fire. The platoon normally is given a limited objective. Upon landing, the support platoons pass through it and carry the attack forward. The leading platoon, upon being passed through, then becomes the company support.

(3) *Column of platoons.* Using this formation, the company normally covers a frontage of less than 250 yards. Hence, the formation reduces congestion and is useful for landing on a limited beach or under conditions of reduced visibility. Since this formation subjects each platoon successively to concentrated enemy fires, the time interval between waves is reduced as much as possible without congesting landing craft and intermingling units on the beach. This time interval should be from 3 to 6 minutes.

(4) *Platoons abreast.* This formation may be used when the initial enemy resistance is expected to be light, or to deliver a powerful frontal assault to seize an objective at the water's edge preliminary to a passage of lines. When this formation is used, all platoons are committed at the same time and the company has little chance to maneuver. This formation seldom is used by an assault company.

e. An *assault BLT* normally lands on a frontage of 500 to 1,000 yards. It may land in any of these formations—

(1) Two companies in assault and one in reserve.
(2) One company in assault and two in reserve.
(3) Column of companies.
(4) Three companies abreast.

f. The above frontages prescribed for the platoon, company, and BLT are to be considered as guides only and may be exceeded if the situation requires.

g. Figure 5 shows two companies in assault and one in reserve, with each leading company using two platoons in the assault. This formation permits the BLT to land on a frontage of 500 to 1,000 yards, with a battalion reserve available to extend the front or to exploit the success of either assault company. The same formation may be used for frontages of

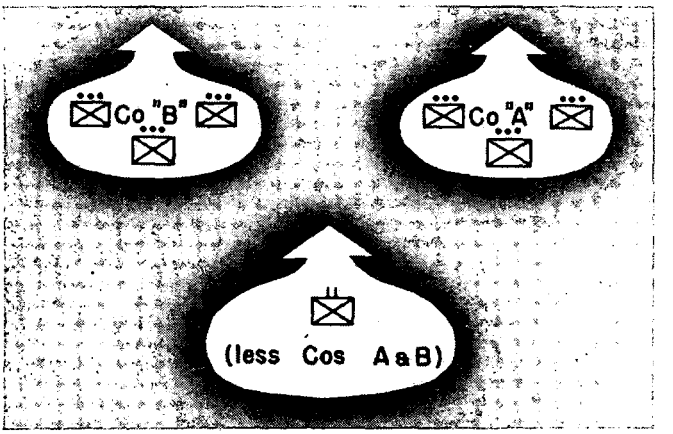


Figure 5. Landing formation: two companies in assault, one in reserve.

less than 500 yards by having one or both assault companies land in a column of platoons. This formation is particularly applicable where the beach line is regular, and where open terrain extends inland for a considerable distance. Under such conditions, the first troops to land need enough power to drive in quickly to seize their initial objectives.

h. Figure 6 shows one company in assault, with two platoons in assault and one in support. The

two remaining rifle companies land abreast. This formation has the advantage of putting one company commander in command of the initial assault on the beach with a support platoon at his disposal to influence the action. The remaining two companies, landing abreast, are in proper formation to pass through the assault force, continue the attack, and extend the front. In this formation, the whole BLT

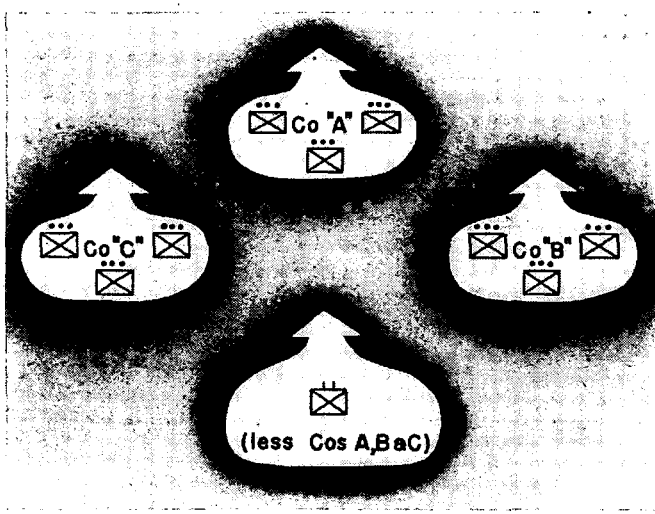


Figure 6. Landing formation: one company in assault, two in reserve.

is committed to a single course of action soon after landing.

i. Figure 7 shows two companies in assault and one in BLT reserve. Each assault company uses a platoon as the assault force. This formation provides an assault force of only two platoons, but it

has the advantage of initially providing a BLT reserve to meet any situation.

j. Figure 8 shows a BLT landing in column of companies. This formation may be used under conditions of limited visibility when the attack is on a narrow front, or it may be used to prevent congestion on a very restricted beach.

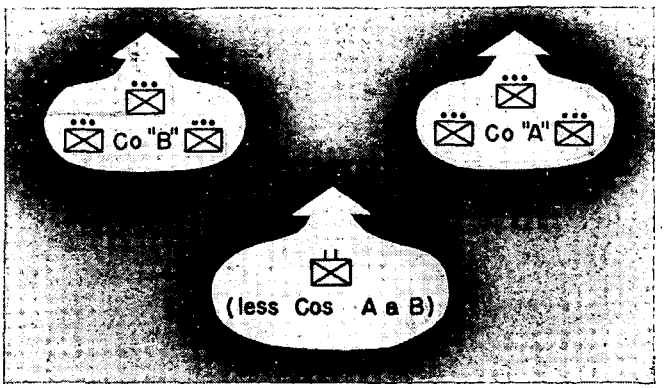


Figure 7. Landing formation: two companies in assault, each with a platoon in advance; one company in battalion reserve.

k. The BLT may land with all companies abreast. This formation is used when the initial enemy resistance is expected to be very light, and when it is desired to land the BLT elements as quickly as possible. It also is used to deliver a powerful frontal assault to seize an important objective at the water's edge.

l. The assault formation most commonly used consists of two companies in assault and one company in reserve. This formation provides the maximum

initial striking power consistent with the requirement of depth in landing and flexibility in committing the reserve. It may be varied by echeloning either of the two assault companies according to the configuration of the beach.

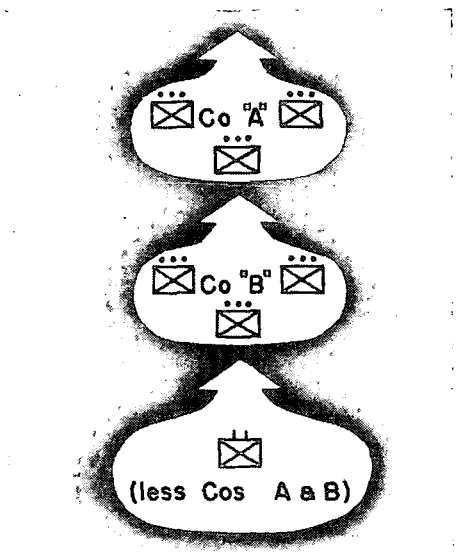


Figure 8. Landing formation: column of companies.

m. To coordinate the over-all plan of attack, the regimental or higher commander may prescribe the formation in which each assault BLT lands. However it is normal for higher commanders to ask the BLT commander for recommendations on his BLT's formation.

35. LANDING THE BLT RESERVE

a. The desired place to land the battalion reserve seldom can be determined before the assault companies land. Therefore, an adequate time interval is allowed between the landing of the assault companies and that of the reserve, to land it behind the company which has successfully cleared its sector of the beach. On the other hand, the time interval is not great enough to delay the timely use of the reserve. An interval of 5 to 15 minutes is normal.

b. In landing his reserve, the BLT commander considers the following:

(1) It should be boated and landed in a formation permitting its most probable use ashore.

(2) It normally lands in one or two waves, tactically organized for combat immediately after landing.

(3) It is prepared to land at any point within the BLT zone of action and at any time designated by the BLT commander. In landing, it is kept clear of combat on the beach.

36. FLANK PROTECTION IS PLANNED IN DETAIL

a. A BLT landing on a flank or next to a gap initially provides flank protection for the whole force. That BLT commander designates the exact unit (usually a rifle company) to perform the mission, and the method to be followed.

b. The problem of providing flank security is com-

plicated by the rapid extension of the front. This disadvantage may be compensated in two ways—

(1) A change of direction by one or more assault units toward the exposed flank, followed by the use of the BLT reserve on the other flank to continue the attack inland (fig. 9).

(2) The use of the BLT reserve to hold the exposed flank while the assault units attack inland (fig. 9). This second method usually is preferable since it avoids a difficult change in direction by the assault units. Its disadvantage lies in the vulnerability to counterattack along the beach before the reserve company lands. To offset this disadvantage, the BLT commander requests naval gunfire, gunboats, and LVT(A)'s to interdict approaches to the exposed flank. In addition, the support platoon of the assault company landing on the exposed flank may be used to protect the exposed flank until the reserve company is ashore.

37. PLAN OF SUPPORTING FIRES

a. The use of supporting fires is a major consideration in the development of both the landing formation and the scheme of maneuver ashore. The early availability and initial effectiveness of the supporting fires depend on—

(1) The foresight of the BLT commander during the planning phase in anticipating the time and place requirements for probable fire support.

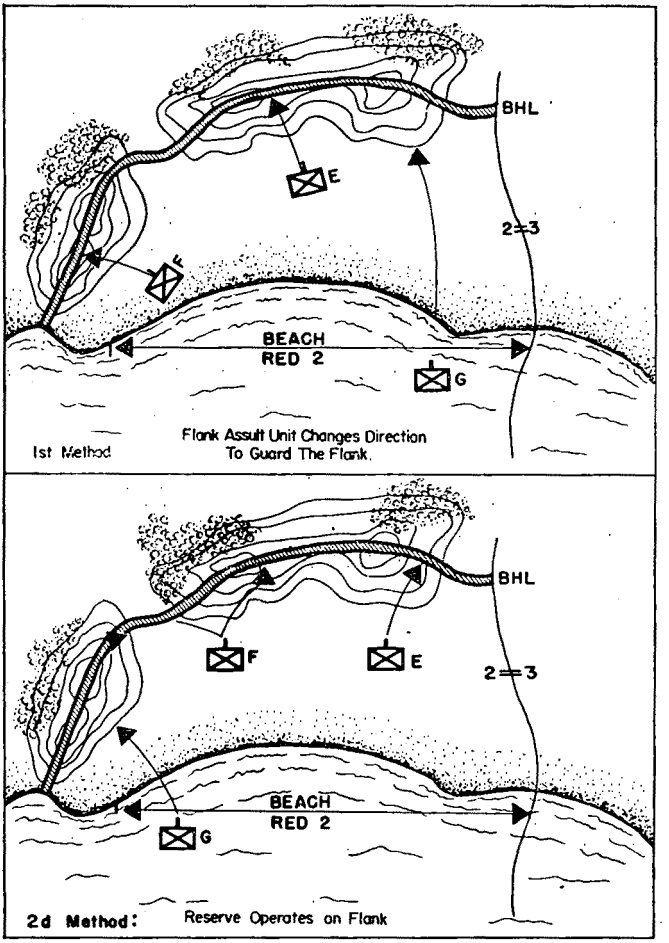


Figure 9. Two methods of securing the BLT's flank.

(2) Adequate provision for decentralizing control, for boat assignment, for landing priority, and for regaining control of supporting weapons.

(3) Adequate provision for the landing, early reconnaissance, and establishment of communication for control of supporting fires.

b. The BLT commander plans the maximum use of close-range supporting fires of naval gunboats and LVT(A)'s. He makes recommendations for LVT(A) employment covering—

(1) Fires on definitely located beach weapons and installations to be destroyed.

(2) Neutralization fires to be maintained on promontories and other critical terrain features enfilading or dominating the beach and its approaches.

(3) Protective fires to be placed immediately behind and along the beach to cover the debarkation of units in the leading waves.

(4) Emergency fires covering the flanks of the beach, especially approaches to an exposed flank visible from seaward.

c. Higher commanders may place LVT(A) units in direct support of, or attach them to, the BLT for combat ashore. These are extremely useful as assault guns in the initial phase before the landing of artillery and self-propelled weapons. The BLT plan provides for the land employment of LVT(A)'s against specific targets, assigning definite fire missions, and designating position areas permitting fire from hull defilade. The BLT commander provides

for their protection against hostile infantry and for the removal of beach mines and obstacles.

d. The BLT plan includes the use of organic battalion supporting weapons and special assault personnel. Initially, their control is decentralized to assure support of the assault companies. Tanks and self-propelled weapons normally are landed and are operating before the assault on the BLT objective.

e. Army light aviation should reach the beach as soon as practicable to observe for supporting fires or to conduct other reconnaissance as requested by the BLT commander.

f. Naval gunfire and air support are available to the BLT commander for request missions as soon as control agencies are ashore and communication is established.

38. ASSIGNMENT TO WAVES

A wave consists of all the boats scheduled to land at the same time on the same beach. The BLT commander assigns elements of his BLT to waves according to the scheme of maneuver ashore, the landing formation, and the expected enemy reaction. For shore party elements attached to the BLT, see paragraphs 218–224. Some of the principles he follows in assigning units are—

a. Assault rifle units, engineer demolition teams, and light-weapon teams are included in the first landing-craft wave. This wave must be capable of quickly crossing the beach, overrunning beach positions, and driving inland unhampered by heavy equipment.

b. The support wave generally includes rifle com-

pany support weapons and crew-served weapons of the heavy weapons company.

c. Advance BLT command elements land behind the assault companies to take command of the action at the earliest practicable moment.

d. Command, liaison, and initial communication elements precede the main elements of the shore party, field artillery, antiaircraft artillery, and other major supporting elements.

e. The tactical air control party (TACP) and the field artillery liaison officer normally land with or at the same time as the BLT commander, so that the BLT commander may obtain close cooperation from naval gunfire and tactical air support.

f. The reserve company is scheduled to land in the third or fourth wave. Because radio communication may fail during the landing, definite orders are issued well before the landing as to the specific location for the reserve company to land in the absence of other orders.

g. Towed weapons and artillery normally are not landed until roadways across the beach are constructed and their position areas are secured.

h. The BLT commander and the BLT executive officer, with reduced staffs and certain liaison and control personnel, ride in free boats not scheduled to land in any specific wave. Then they are free to land at the time and place where they can best control the action ashore.

i. In general, assault rifle companies are embarked in the first two waves; the heavy weapons, headquarters and headquarters company, and reserve company in the next two waves; and the field artillery, anti-

aircraft artillery elements, service units, and supplies in later waves.

39. TIMING AND COMPOSITION OF ASSAULT WAVES

a. The landing time of waves after the first wave is recommended by the BLT commander as a means of establishing the operational depth required to sustain the assault and to provide flexibility to the attack. In determining the proper time interval between successive waves, the BLT commander evaluates—

(1) The probable state of operations ashore at the time of landing, including such factors as the depth of inland advance of the preceding wave, probable need for support, and congestion of boats and personnel on the beach.

(2) The composition of the wave as it affects its landing time, including such factors as the depth ashore required for the maneuver of reserves, the minimum range and position area requirements for supporting weapons, and the vulnerability of heavy crew-served weapons during landing.

b. The timing of the arrival of waves on the beach is carefully planned, based on the probable condition of the surf and tide, the beach gradient, and the enemy reaction. If the second or support wave follows too closely behind the first wave, personnel of the first wave may not have had time to clear the beach. This intermingles and confuses units with consequent loss of control and forward impetus. If on the other hand, there is too great a time interval

between these waves, the second wave may land too late to effectively support the assault. The enemy in that case might well defeat both waves in detail. Subsequent waves are scheduled to land at time intervals permitting the preparation of the beach for their arrival. Figures 10 and 11 illustrate two possible landing formations and the time intervals between waves.

40. BOAT TEAM COMPOSITION

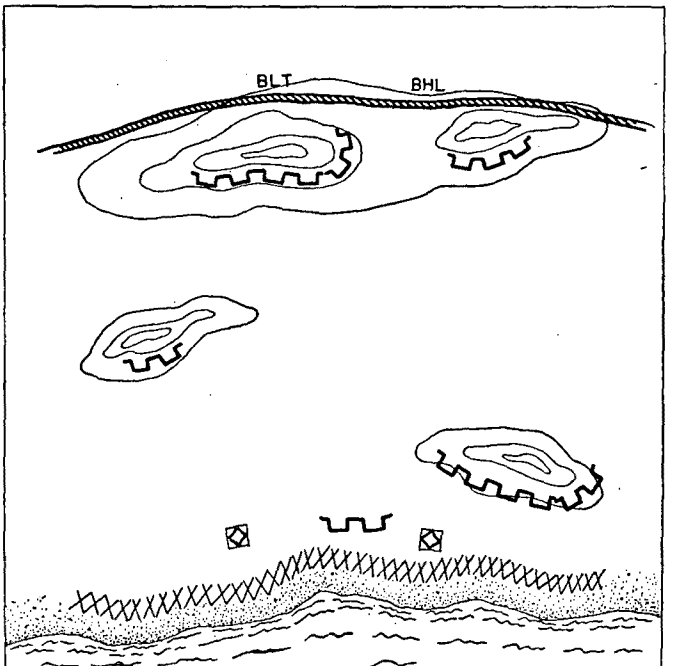
a. The BLT commander supervises the breakdown of the BLT into boat teams. He makes sure that the rated capacity of each type of landing craft is not exceeded. The total capacity is expressed in terms of boat spaces. See appendix IX for definition of boat space. Should the Navy place additional limitations because of weather or surf conditions, thereby reducing the maximum capacity, these figures are complied with.

b. Boat teams in the *first wave* are self-contained tactical units capable of independent action immediately upon landing. This organization requires—

(1) Reinforcement of boat teams with appropriate company or battalion weapons and personnel.

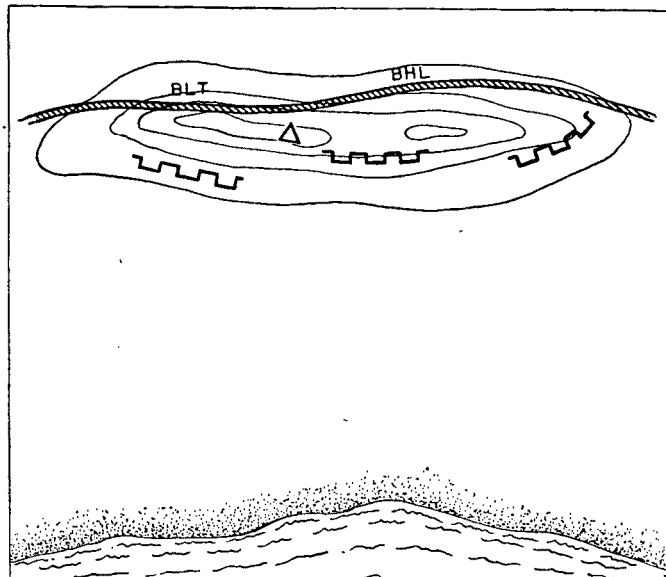
(2) Adequate distribution of special weapons and matériel including rocket launchers and recoilless weapons, flame throwers, grenades of all types, screening agents, and demolition materials in ample variety and quantity.

c. Boat teams in *subsequent waves* are organized to properly execute their tactical or administrative



WAVE NO.	TIME OF LANDING	REMARKS
1	H-HOUR	4 ASSAULT RIFLE PLATOONS (REINF)
2	H + 3 MIN	REMAINDER OF 2 ASSAULT RIFLE COS
3	H + 7 MIN	HV WPN CO (-) BN HQ CO (-) SHORE PARTY RECON
4	ON CALL	RESERVE CO SHORE PARTY
5	ON CALL	PLATOON HV MORTAR CO BN HQ AND CO VEHICLES
6	ON CALL	ARTY AND VEHICLES

Figure 10. Wave composition and timing of waves against strong beach defenses.



WAVE NO.	TIME OF LANDING	REMARKS
1	H-HOUR	4 ASSAULT RIFLE PLATOONS (REINF)
2	H+3 MIN	REMAINDER OF 2 RIFLE COS
3	H+7 MIN	HV WPN CO(-) BN HQ CO(-) & SHORE PARTY RECON
4	H+12 MIN	RESERVE CO SHORE PARTY
5	H+17 MIN	PLATOON HV MORTAR CO SHORE PARTY
6	H+30 MIN	ARTY AND VEHICLES
7	H+35 MIN	VEHICLES

Figure 11. Wave composition and timing of waves against weak initial enemy resistance.

functions. Their composition is dictated by the following considerations:

(1) Maintaining the tactical integrity of supporting weapon elements.

(2) Boating liaison and reconnaissance personnel for supporting weapons to expedite their entry into action.

(3) Boating key command, communication, and medical personnel and matériel in more than one landing craft to prevent total loss if one craft is lost.

(4) Distributing ammunition, medical, and other vital supplies in several landing craft for the ship-to-shore movement. For example, all 81-mm mortar ammunition is not loaded in one landing craft as the loss of that one craft might seriously affect the assault.

(5) Boating of drivers with their vehicles.

(6) Boating of towed weapons with their crews and prime movers.

(7) Boating of medical aid men with the platoons to which they are attached.

41. SHIP-TO-SHORE MOVEMENT PLANS

a. Having determined the scheme of maneuver and the landing plan, the BLT commander prepares detailed plans for moving his BLT ashore according to the plan of attack.

b. The ship-to-shore movement is a critical phase of the beach assault. It is more than a simple ferrying operation. It involves the deployment of the BLT (in landing craft) for battle and is conducted according to the principles of fire and maneuver.

c. In the landing attack, troops are boated in accordance with the scheme of maneuver ashore, while maintaining tactical unity as closely as possible. To execute the scheme of maneuver ashore landing craft carrying the assault elements must deploy on the water to place the assault troops on the proper beach and in the proper attack formations. The deployment of the landing craft takes place beyond the effective range of enemy direct fire weapons. Flexibility is maintained by deploying supports and reserves on the water to land on the proper beach at the proper time to exploit success. Tanks, artillery, and other supporting weapons follow the assault troops ashore to provide support for the attack beyond the beach.

d. The number of men and amount of equipment to be landed in the assault echelon determine the landing craft requirements for the movement of the BLT assault elements. Each assault transport carries from 25 to 35 landing craft, including 1 to 3 LCC's, 2 to 4 LCM's, and the remainder LCVP's. For characteristics of landing craft see appendix II. Usually more craft are needed to boat all assault elements. Additional craft from other ships in the same transport division may be attached to transports carrying the assault BLT's. When there are not enough boats to land all assault elements of the BLT in one trip, the landing craft return to the transport and land the remainder of the BLT.

e. If the scheduled landing beach is unobstructed by reefs, shoals, or other water obstacles, landing craft organic and attached to the transport form a boat group to transport the BLT ashore. This is

the simplest type of landing because it involves the minimum number of landing craft, does not involve transfer operations, and the craft for the most part are carried aboard the ship transporting the BLT.

f. When the landing beach is obstructed by reefs or other obstacles to landing craft, the landing problem becomes more complex and special plans are made. This type of operation requires the use of LVT's to carry troops and equipment to the beach. Normally, troops and equipment landing in the first trip of LVT's are transferred in landing craft from the transports to landing ships. The landing ships move as close to the line of departure as conditions permit. Troops and their equipment then load in LVT's aboard the landing ships and proceed to the line of departure. Later waves are carried from the transport to a transfer line located just seaward of the reef, where they are transferred to LVT's and carried to the beach.

42. FORMS FOR THE LANDING ATTACK

Certain landing forms are published as parts of the BLT and higher commander's operation orders. They outline the ship-to-shore movement and give the participating units information in tabular form for the conduct of the movement. The forms pertinent to the BLT are the—

a. Landing craft availability table.

b. Landing craft employment plan.

c. Amphibious vehicle availability table and employment plan.

d. Boat assignment table.

e. Landing diagram.

f. Debarkation schedule.
g. Approach schedule.

43. LANDING CRAFT AVAILABILITY TABLE

This table (fig. 12) is published by the navy transport division, and it lists the number of landing craft available within the transport division. This table is the basis for assigning landing craft to boat groups organized to land each assault BLT. The form usually is issued as an annex to the transport

LANDING CRAFT AVAILABILITY TABLE

24 Oct. 1950

TRANSPORTS	LCVP	LCM(3)	LCM(6)	LCC	LCP(R)	REMARKS
APA-64	19	1	2	2	1	2 LCVP not available before 11/13/50
APA-118	15	2	1	1	2	None
TOTAL						

Figure 12. Landing craft availability table.

division operation plan. The information it contains is made available to the regimental commander early enough for him to use it in preliminary planning.

44. LANDING CRAFT EMPLOYMENT PLAN

Based on the requirements of the assault BLT's and the location of the transport division's ships in the transport area, the transport division commander

prepares a landing craft employment plan (fig. 13). This plan shows the assignment and movement of landing craft from the various vessels in the transport division to meet the requirements of the assault BLT's. Additional craft for assignment to the ships carrying assault BLT's usually come from the transports carrying the reserve BLT, the regimental combat team units, and the transport division's assault cargo ships. The *time of arrival* (column 5) indi-

LANDING CRAFT EMPLOYMENT PLAN
TRANSPORT DIVISION
TRANSPORT GROUP

24 OCT. 19 50

NUMBER OF CRAFT	TYPE	FROM	TO	TIME OF ARRIVAL	PERIOD ATTACHED	REMARKS
6	LCVP	AKA-9	APA-13	0615/12/15/50	Until released	
2	LCM(3)	AKA-9	APA-13	0615/12/15/50	Until released	
1	LCM(6)	AKA-9	APA-13	0615/12/15/50	Until released	

Figure 13. Landing craft employment plan.

cates when the craft will be available, and the *period attached* (column 6) indicates when the craft is scheduled to return to the parent vessel. This plan usually is issued as an annex to the transport division operation plan.

45. AMPHIBIOUS VEHICLE AVAILABILITY TABLE AND EMPLOYMENT PLAN

Amphibious vehicles usually are transported in landing ships to the landing ship area located seaward of the line of departure. The vehicle is loaded

with personnel and equipment which are debarked here. The over-all amphibious vehicle availability table and employment plan (fig. 14) is prepared by higher commanders, based on recommendations submitted by the RCT commanders. When applicable,

AMPHIBIOUS VEHICLE AVAILABILITY TABLE AND EMPLOYMENT PLAN

LVT OR DUKW CARRIER	NUMBER AND TYPE OF LVT AND DUKW			REMARKS
	LVT(A)(5)	LVT(4)	DUKW	
LST 70	5	12		
LST 71	5	12		
LST 72	5	14		2 LVT MAINT
LST 74	3	15		3 LVT MAINT
LST 76	5	12		
LST 78	5	13		1 LVT MAINT
LST 79	5	13		1 LVT MAINT
LST 81	3	15		3 LVT MAINT
LST 82	3	11		6 DIV FLOATING DUMPS
LST 83		10		4 DIV FLOATING DUMPS
LST 85			34	ATCH TO SHORE PARTY WHEN RELEASED BY ARTY
LST 88			34	ATCH TO SHORE PARTY WHEN RELEASED BY ARTY
LST 91			34	ATCH TO SHORE PARTY WHEN RELEASED BY ARTY
LST 92			6	SHORE PARTY
	39	127	108	

LVT AND DUKW EMPLOYMENT PLAN

WAVE	NUMBER AND TYPE OF LVT AND DUKW			LVT OR DUKW CARRIER	REMARKS
	LVT(A)(5)	LVT(4)	DUKW		
1 H-HOUR	39			LST	
2 H+1		16		LST	
3 H+5		18		LST	
4 H+10		18		LST	
5 H+18		6		LST	
6 H+28		12		LST	
7 H+35		20		LST	
FREE BOATS		6		LST	
ON CALL		10		LST	DIV FLOATING DUMPS
ON CALL		16		LST	DIV SHORE PARTY
ON CALL		5		LST	DIV RCT HQ
ON CALL			6	LST	DIV SHORE PARTY
ON CALL			102	LST	ARTY

Figure 14. Amphibious vehicle availability table and employment plan.

the BLT commander extracts and publishes parts of this table in the BLT operation order. The table shows the location and types of landing vehicles in each wave. It complements the landing diagram.

46. LANDING DIAGRAM

a. The landing diagram (fig. 15) schematically shows the landing formation for the BLT. It illus-

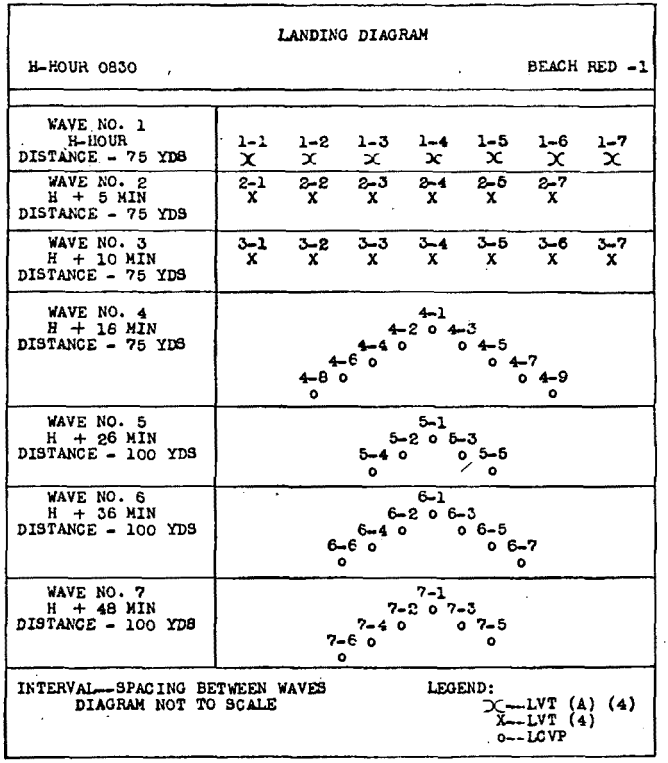


Figure 15. Example of a BLT landing diagram.

trates the number and type of craft in each wave, their distances and intervals, and the time each wave is scheduled to land. This diagram also is issued as an annex to the BLT operation order. As such, it may be an extract and an elaboration of a similar diagram in the regimental and division operation orders. It is prepared by the BLT commander and complements the boat assignment table.

b. Normally, the type of landing craft and the landing formation are determined by the BLT commander. Commanders of higher units may prescribe the formation and composition of the assault waves of each BLT under their command or, for the purpose of over-all control, may prepare a consolidated diagram showing the over-all formation and composition for all assault BLT's. This is particularly true when senior Army and Navy commanders must coordinate the debarkation and formation of amphibious vehicle waves. Such consolidated diagrams are based on recommendations submitted by the BLT commanders.

c. In preparing the landing diagram—

(1) Waves are numbered from front to rear.

(2) The landing time for each wave is expressed in terms of H-hour.

(3) Each landing craft is assigned a boat team number according to the tactical plan. This number determines its wave and location in the wave, and corresponds to the boat team assigned to each boat as shown on the boat assignment table.

(4) Boat team numbers for landing craft waves begin in each wave with the leading land-

ing craft, even numbers to the left and odd numbers to the right. A two-figure number is used—the first digit indicating the wave, the second digit indicating the landing craft's position within the wave.

(5) Amphibious vehicles are numbered from left to right in each wave in the formation. Each vehicle has two numbers as do the landing craft; the first indicating the wave, and the second indicating its position in the wave.

(6) The types of landing craft are indicated in the diagram.

47. BOAT ASSIGNMENT TABLE

a. The BLT commander prepares the boat assignment table (fig. 16) as soon as the BLT's composition and landing formation are determined, and the number, types, and speeds of landing craft assigned to land the BLT are known. This table shows a detailed breakdown of all BLT personnel and matériel into boat teams and the boat team assignments to specific waves. Together with the landing diagram, this table contains the information to deploy the BLT for the initial assault.

b. In the boat assignment table, consideration is given to—

(1) The assignment of separate landing craft, designated as free boats, to the BLT commander and to the BLT executive officer. These boats are not assigned to a wave; they cruise independently as directed by the officer concerned.

(2) Landing craft used by the Navy for control, guide, salvage, and other activities normally are reserved and are not listed as available for troops.

BOAT ASSIGNMENT TABLE

BOAT NO	PERSONNEL AND MATERIAL	BOAT SPACES	FORMATIONS
FREE BOAT 00-1	Bn Commander.....	1	
	Orderly.....	1	
	Bn S3.....	1	
	Clerk, S3.....	1	
	Comm O and 7 EM w/2 SCR-300's.....	8	
	Intel Sgt.....	1	
	CO, Co D.....	1	
	Msgr, Co D w/SCR-300.....	2	
	Arty, Ln Team.....	3	
	Naval Gunfire Ln O w/4 EM.....	5	
	TACP.....	2	
	Hv Mort Ln Team.....	2	
	Shore Party Ln.....	2	
	Total.....	35	
FREE BOAT 00-2	• • • • • • • • • • • • • • • • • • • •	• • • • •	• • • • •

Figure 16. Extract of a boat assignment table.

(3) The fastest landing craft are assigned to the assault waves; all craft in each wave should have approximately the same speed.

(4) Craft used for landing the assault waves are small enough for the troops to land in small

units capable of immediately deploying on the beach.

(5) Each boat team in the assault wave is reinforced so that it can fight independently until the companies can reorganize. Tactical unity is maintained, and units are landed in proper tactical formations.

LCVP	1st WAVE		
1-1	(Two Assault Plat, Cos A & C)		
	Plat Ldr, 1st Plat, Co A	1	
	Msgr, 1st Plat, Co A	2	Column
	1st Sqd, 1st Plat, Co A	9	1-1 *
	2d Sqd, 1st Plat, Co A	9	1-2 *
	Wpns Sqd, 1st Plat, Co A	9	1-3 *
	Assault Engr Team	3	1-4 *
	Obsr, 60-mm Mort Sqd, Co A	1	1-5 *
	Med Aid Man	1	1-6 *
	Total	35	1-7 * 1-8
LCVP	Plat Ldr, MG Plat, Co D	1	Vee
1-3	Msgr, MG Plat, Co D	2	1-1 1-2 1-3 1-4 1-5
	Plat Sgt, 1st Plat, Co A	1	1-6 1-7 1-8
	Msgr, 1st Plat, Co A	1	
	3d Sqd, 1st Plat, Co A	9	
	1st Sqd, MG Plat, Co D	10	
	Assault Engr Team	6	
	Obsr, Intel Sqd, Bn Hq Co	1	
	Med Aid Man	1	
	Total	32	

Figure 16—Continued.

48. DEBARKATION SCHEDULE

a. The debarkation schedule (fig. 17) is prepared to establish a plan for the debarkation of BLT troops and matériel. It is prepared jointly by the BLT commander and the transport commander, and it is an annex to their operation orders. It is given wide dissemination to get the information to all those

DEBARKATION SCHEDULE

	Red-1 Net	White-3 Net	Blue-5 Net	Yellow-7 Net	Green-9 Net
1st Boat	LCVP 2-1 Boat Tm 2-1	LCVP 2-3 Boat Tm 2-3	LCVP 2-5 Boat Tm 2-5	LCVP 3-1 Boat Tm 3-1	LCVP 3-3 Boat Tm 3-3
2d Boat	LCVP 00-1 Free Boat	LCVP 2-9 Boat Tm 2-9	LCVP 2-10 Boat Tm 2-10	LCVP 4-1 Boat Tm 4-1	LCVP 3-5 Boat Tm 3-5
3d Boat					LCVP 4-3 Boat Tm 4-3
4th Boat					
	Red-2 Net	White-4 Net	Blue-6 Net	Yellow-8 Net	Green-10 Net
1st Boat	LCVP 2-7 Boat Tm 2-7	LCVP 2-2 Boat Tm 2-2	LCVP 2-4 Boat Tm 2-4	LCVP 3-6 Boat Tm 3-6	LCVP 3-2 Boat Tm 3-2
2d Boat	LCVP 00-2 Free Boat	LCVP 2-6 Boat Tm 2-6	LCVP 2-8 Boat Tm 2-8	LCVP 4-2 Boat Tm 4-2	LCVP 3-4 Boat Tm 3-4
3d Boat					LCVP 4-4 Boat Tm 4-4
4th Boat					
	HATCH-1	HATCH-2	HATCH-4		
1st Boat	LSU-8 3-med Tks	LCM-6 1-2½ ton, 4x4	LSU-3 6-2½ ton, 4x4 1-1 ton, bulldozer		
2d Boat	LCM-4 1-TD9, bulldozer	LSU-9 2-med Tks	LCM-7 1-2½ ton, 4x4		

RAIL LOAD			
WHITE-3 DAVIT	WHITE-4 DAVIT	BLUE-5 DAVIT	BLUE-6 DAVIT
1-1 1-5 1-9	1-2 1-6 1-10	1-3 1-7 1-11	1-4 1-8 1-12

Figure 17. A typical debarkation schedule.

controlling the debarkation of boat teams. This schedule is not prepared for BLT units that land in amphibious vehicles.

b. In preparing the debarkation schedule, these points are considered—

(1) The first column lists the sequence that landing craft report to their respective debarkation stations.

(2) Succeeding columns list the numbers of boat teams and landing craft that load from each debarkation station. These numbers correspond to those entered on the boat assignment table. Enough space is provided on the form to make penciled notations of the time required to debark each boat team during rehearsals.

(3) If some boat teams load from the rail, the schedule shows the numbers of those boat teams and the davits each is to use.

(4) The instructions in this schedule may be supplemented and further clarified by a diagram of the ship, showing the debarkation stations (fig. 18). This diagram also shows which boats load at each station and their order of loading.

49. APPROACH SCHEDULE

The approach schedule (fig. 19) shows each wave's departure time from the rendezvous area and from the line of departure, the arrival time at the beach, and the course from the rendezvous area to the line of departure and from the line of departure to the

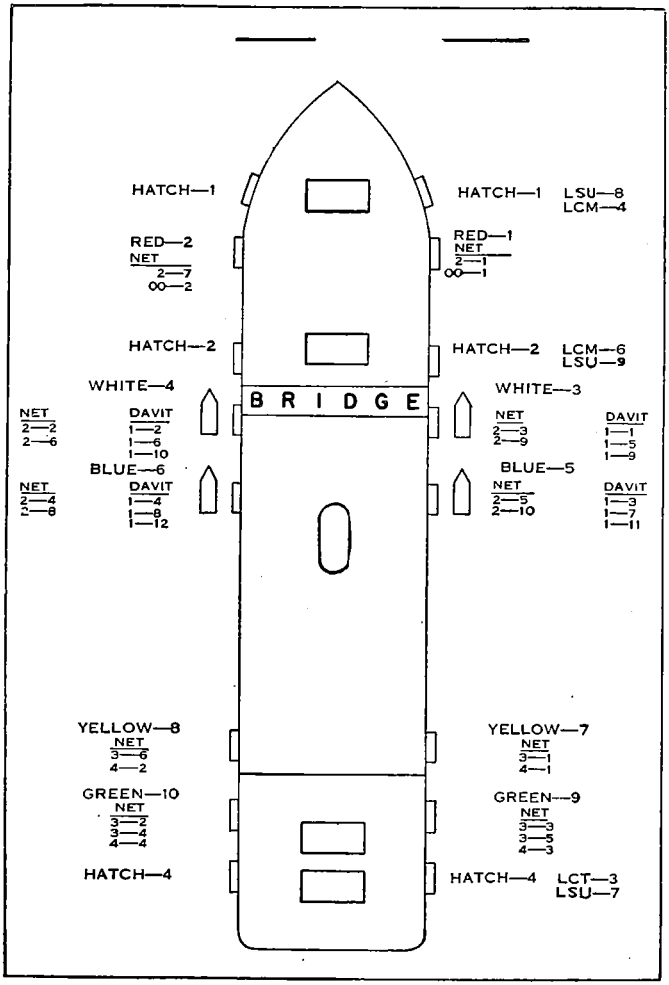


Figure 18. Diagram showing the location of debarkation stations.

APPROACH SCHEDULE

H-Hour 0830

BEACH RED-1

WAVE	LEAVE RENDEZVOUS AREA	LEAVE LINE OF DEPARTURE	LAND
1	H-55	H-10	H
2	H-50	H-5	H+5
3	H-45	H	H+10
4	H-40	H+5	H+15
5	H-35	H+10	H+20
6	H-20	H+25	H+35

Course from Rendezvous Area to Line of Departure

267° True 272° Magnetic

Course from Line of Departure to Beach

292° True 297° Magnetic

Boat Group Commander: Smith, Lt USN

Asst Boat Group Commander: Johnson, Lt (Jg) USN

Division Control Officer: Conner, Lt, Comdr, USN

Embarked on APA 16

Figure 19. Example of an approach schedule.

beach. This schedule is prepared by the commanding officer of the ship, who considers—

a. The speed of the landing craft and the distances involved. These are worked out mathematically from data established during training and rehearsals.

b. The numbers of the waves listed in this schedule and their arrival time at the beach. These correspond to the landing diagram.

Section IV. COMMUNICATION PLANNING

50. COMMUNICATION PLANNING AIMS AT MAXIMUM CONTROL

a. Communication planning begins simultaneously with other planning. An adequate communication plan assures the BLT commander of maximum control during the operation. The BLT communication officer prepares the plan after conferences with the regimental communication officer.

b. The BLT commander and staff, as far as permitted by security requirements, give the BLT communication officer the maximum information about the impending operation. In making the communication plan, he needs to know about the terrain, objectives, and distances over which the BLT will operate; communication plans of units participating in the operation (including naval and air forces); types of craft to be used; the plan of resupply; and the estimate of climatic conditions.

c. He considers these factors in preparing the communication plan—

(1) Date and hour the plan is to become effective.
(2) Enemy jamming, direction finding, interception, and communication facilities.
(3) Intercommunication between participating units (shore party, naval units, fire support units, and attachments).

(4) Time system to be used.
(5) Distance to objectives.
(6) Packing, waterproofing, and loading.
(7) Radio—
  (*a*) Discipline.
  (*b*) Silence (when nets will open).
  (*c*) Authentication (station and operator).
  (*d*) Special or additional equipment to be used.
  (*e*) Prearranged signals (flash or other warning signals).
  (*f*) Frequencies and call signs.
  (*g*) Nets to be established with the BLT (to shore party, aircraft, navy, and supporting and attached units).
(8) Cryptographic measures.
(9) Visual signals—
  (*a*) Panels.
  (*b*) Pyrotechnics.
  (*c*) Special signals.
(10) Wire—
  (*a*) Normal circuits—company, OP, CP (and other locals), and regimental lines.
  (*b*) Special circuits—shore party, and attached and supporting units.
  (*c*) Procedures for installation and operation.
(11) Message centers and messengers.
(12) Communication with other units, including naval and air forces.

d. Much of this information is obtained from higher commanders to be incorporated into the BLT communication plan.

Section V. PERSONNEL PLANNING

51. AMPHIBIOUS OPERATIONS HAVE SPECIAL PERSONNEL REQUIREMENTS

a. The personnel requirements normal to ground combat are considered in planning an amphibious operation. This type of operation gives certain of these requirements added importance.

b. Maximum effort must be made continuously to obtain replacements as soon as possible for anticipated administrative and combat losses. Adjustments in personnel normally should be anticipated as far in advance of an amphibious operation as possible. Upon receipt of a warning order by division, maximum effort is made to obtain an overstrength, at least equal to the anticipated losses from injuries during training, rehearsals, and movement to the target area and from casualties during the assault phase. The new replacements should receive thorough training before embarkation as members of a BLT. The replacements in excess of the tables of organization authorized strength of the BLT are returned to the division replacement company before embarkation for the objective area. This overstrength in the division replacement company provides an immediate source of trained men readily available to replace combat losses during the initial phases of the assault.

c. Provisions are made to control prisoners of war taken by the BLT during the initial assault until regimental control and evacuation can be established ashore. For detailed functions of the battalion shore

party regarding prisoners of war, see paragraphs 218–224.

d. Combat efficiency (as indicated by physical condition and morale) is carefully watched through frequent inspections of all BLT units. Maximum facilities are made available to the troops for rest, recreation, and religious services before embarkation and during the movement to the objective.

Section VI. ADMINISTRATIVE AND LOGISTICAL PLANNING

52. SCOPE OF PLANNING

a. Administrative and logistical plans to support the operation are started as soon as the basic tactical plan is decided upon. For the BLT, these include the planning to—

(1) Move the landing team to the embarkation area.
(2) Procure and prepare the supplies, equipment, and troops for embarkation.
(3) Embark the troops, equipment, and supplies aboard the transport (or landing ships).
(4) Provide for the administration of the troops during the movement to the objective.
(5) Debark the equipment and supplies at the proper time and in the prescribed sequence for the landing attack plan.
(6) Provide for the care and evacuation of casualties.
(7) Provide for the control and landing of emergency supplies.

b. Amphibious operations place a greater administrative responsibility on the BLT commander than normal land operations do.

53. SUPPLY PRINCIPLES

The restrictions that amphibious operations place upon supply procedures and facilities require certain principles to be emphasized in the planning and execution of logistical support. These principles are as follows:

a. The BLT commander assures the availability of those supplies that will be required by his units before the normal higher unit supply agencies are established ashore.

b. Administrative and logistical plans must be flexible to support alternate plans, if executed.

c. BLT units are relieved of administrative and logistical details to the maximum extent.

d. The administrative and logistical plans are coordinated with and capable of supporting the tactical plan.

54. PLANNING SEQUENCE

The logistical planning sequence for the BLT usually is—

a. The general plan for supplying the BLT until the RCT supply facilities are operating ashore.

b. Preparation of the billeting plan for the embarkation team.

c. Establishment of priorities for the loading of vehicles, equipment, and initial supplies.

d. Computation of the weight and cubic displacement of supplies to be loaded.

e. Preparation of detailed loading plans.

55. AMPHIBIOUS OPERATIONS USUALLY REQUIRE SPECIAL EQUIPMENT

a. Amphibious operations and ship cargo limitations usually require assault units to make changes and additions to standard equipment and basic allowances. Such changes may include adding flame throwers, sub-machine guns, and demolition equipment; substituting light for heavy machine guns; and increasing the number of 60-mm mortars and decreasing the number of 81-mm mortars. The decision as to what will be taken by each unit and person in the landing team is based on the operational requirements and the available space.

b. An assault BLT may be restricted to its organic weapons, ammunition, and essential vehicles; and to limited field rations, water, gasoline, oil, and individual baggage.

c. The restricted cargo space aboard ship and the terrain in the objective area may limit or require substitution for the organic motor transport of each BLT. Normally, the BLT commander can plan on a 30 to 50 percent reduction in organic transportation. In that case, he decides which vehicles are the most essential to the accomplishment of his mission.

d. The substitution of smaller and lighter vehicles for larger vehicles may be required to save cargo space and to permit the addition of bulldozers and amphibious vehicles needed for the assault.

e. Waterproofing materials are provided for ve-

hicles, weapons, communication equipment, and medical supplies that may become damaged or inoperative from exposure to salt water. Deep-waterproofing kits are provided by ordnance for each type of vehicle. Ordnance personnel generally are available for the supervision of final phases of this work. See TM 9–2853 for the details of waterproofing vehicles and weapons.

f. Special demolition equipment items for breaching underwater and beach obstacles may be required for each assault BLT.

56. SUPPLY IS A COMMAND RESPONSIBILITY

The BLT commander is responsible for assuring the initial supply of required items for an amphibious operation, and for initiating resupply requests.

57. AMPHIBIOUS SUPPLY REQUIREMENTS

The types and the quantities of supplies required in the assault phase of an amphibious operation are greater than in a normal land offensive. This is because amphibious operations demand special equipment and because additional reserve quantities of supplies are required to support the operation until normal land support is established ashore. Higher commanders usually specify the amounts of each class and item of supply to be taken with each assault BLT.

58. SUPPLY ECHELONS

For an amphibious operation supplies of all classes are divided into echelons to coordinate loading and

unloading and to provide the initial supply of units landing on separate beaches. While each echelon is planned and loaded as a separate and distinct entity, the situation upon landing may result in the simultaneous unloading of several echelons. The echelons are classified as individual reserves, initial reserves, beach reserves, and landing force reserves.

a. Individual Reserves.

(1) Supplies in this echelon consist of water, ammunition, rations, fuel, and medical supplies to sustain the landing force for a period of 1 or 2 days. The individual reserves for the BLT are loaded aboard the ship or ships carrying the BLT. Part of these supplies are loaded on vehicles scheduled to land in later assault waves. Part are placed in accessible holds to be issued to the assault troops before debarkation. The remainder is loaded aboard ship in bulk or on pallets and is given a high unloading priority.

(2) Bulk supplies may be issued to assault units to be brought ashore and dumped above the high-water mark or at designated points a short distance inland. If strong beach opposition is encountered, bulk individual reserves of ammunition, water, and medical supplies are placed in designated landing craft or landing vehicles returning from the first trip to the beach. These boats report to a designated control vessel where they form a floating dump of emergency supplies available on call.

b. Initial Reserves. This echelon consists of supplies of all classes for the landing force for a period of 3 to 5 days. The initial BLT reserves normally are placed aboard the ship or ships transporting the landing team. Those initial reserves that are mobile loaded may be sent ashore as soon as the battalion shore party is prepared to receive them. Those supplies that are palletized or bulk loaded are not landed until the regimental shore party elements, with adequate handling equipment, are ashore and ready to receive them.

c. Beach Reserves.

(1) This echelon consists of supplies of all classes for the entire landing force for a period of 5 to 10 days. These reserves provide the continuity of supply during temporary interruptions in resupply shipping.

(2) Usually the beach reserves for each RCT are prorated aboard the transport division ships carrying the RCT. They are placed in a lower priority than individual and initial reserves, and are not unloaded until the regimental shore party is prepared to receive them.

d. Landing Force Reserves. This echelon consists of supplies for a period of 10 to 30 days. These supplies may accompany the assault convoy in AKA's or cargo ships, or they may be shipped on a follow-up convoy to arrive between D-plus-5 and D-plus-10.

59. CLASS I SUPPLIES

a. Field rations are prescribed for the operation. The individual reserves carried by personnel in the

assault BLT's are carefully considered. Generally, one or two rations are carried by each person. Vehicle crews carry their rations in their vehicles. Initial ration reserves for each BLT generally are loaded with the troops, and are landed after the assault troops are ashore.

b. All personnel embark with filled canteens. Normally, each person is issued two canteens. All 5-gallon water cans are taken ashore filled. The commanding officer of the ship is responsible for supplying water to the BLT en route to the objective, and for the initial supply of water ashore until local sources on land are available. If water sources are not available ashore, empty water cans may be returned to the transport for refilling or may be refilled from tanks installed in landing craft. Transports can furnish water for all BLT personnel at the rate of 2 gallons per man per day. All personnel are issued purification tablets and are thoroughly instructed in their use. Local water sources are not used until purified.

c. Items like salt tablets, malarial suppression tablets, insect repellents, and seasick tablets are issued as needed. Instructions for their use are included in the BLT order.

60. CLASS II SUPPLIES

Individual clothing and equipment to be carried by all BLT personnel are detailed in the RCT commander's order. Generally, an initial reserve for 5 to 10 percent of the BLT personnel is loaded with the landing team. Clothing may be bundled by sizes, and

individual weapons and equipment by type. Each bundle is waterproofed and is sent ashore after the assault waves to replace the clothing and equipment of those who may have lost equipment in swimming ashore.

61. CLASS III SUPPLIES

The higher commanders' plans usually provide for the embarkation of all vehicles with gasoline tanks filled to 75 percent capacity, and with crank cases filled with oil. In addition, spare 5-gallon cans of gasoline, extra oil, and lubricants in issue containers accompany each vehicle. Spare cans are placed in the body or cab of the vehicle to prevent damage and consequent spilling of contents during loading and unloading. Spilled lubricants and fuels are serious fire hazards aboard ship.

62. CLASS IV SUPPLIES

a. For the BLT, Class IV supplies usually consist of engineer and medical items required in the assault. Additional engineer equipment required for amphibious operations is prescribed by higher commanders. It accompanies the battalion shore party or attached engineer units. Additional heavy equipment for inland construction is given a priority in the BLT loading plan.

b. Medical supplies are carried by the attached medical units. Additional types and quantities to be taken ashore in the assault are prescribed in the BLT administrative order. The plans also provide for emergency items on call.

63. CLASS V SUPPLIES

a. Class V supplies include all ammunition, demolitions, and explosives required in the assault. They are loaded aboard ship in a manner that permits unloading by type and quantity desired. Normally, ammunition to be issued to each man and weapons crew just before debarkation is placed in an accessible hold or locker aboard ship.

b. An initial ammunition reserve in balanced loads is placed on vehicles for dispatch to the beach as soon as practicable. This reserve also includes emergency bulk or palletized supplies in balanced quantities and types, loaded to make them available on call.

Section VII. EMBARKATION AND DEBARKATION PLANS

64. EMBARKATION ORGANIZATION PLANS

The organization for embarkation is flexible and meets the requirements of each loading problem. The organization varies with the type of ships to be loaded. Technically qualified personnel at ports of embarkation normally will assist the BLT commander with details of loading and stowage plans.

a. The organization for embarkation includes—

(1) A battalion loading officer.

(2) Officer and enlisted assistants for the battalion loading officer.

(3) A ship's platoon.

b. The battalion loading officer (BLO) may be either a BLT officer especially trained for this duty or a Transportation Corps officer attached to the

BLT for the operation. He is in charge of planning the loading and unloading of supplies and equipment for the ships to which his BLT is assigned. The BLO is the BLT commander's representative on all matters relating to the loading, unloading, troop billeting, and liaison with ship's personnel. He is assisted by the billeting officer and the troop mess officer. He is assisted in the ship assembly area by the battalion motor officer and the pioneer and ammunition officer. Aboard ship, he is assisted by the ship's platoon leader whose platoon furnishes the labor for loading and unloading. If army special amphibious units are included in the operation they are prepared to organize the embarkation point, set up the communication net, and through their attached naval beach party, control the loading of the transport ships. If embarkation is accomplished at ports of embarkation, Army Transportation Corps units will establish embarkation areas, schedule arrival of units, and coordinate loading of the ships.

65. EMBARKATION PLANS

Embarkation is divided into two parts—the loading of equipment and supplies, and the embarkation of troops. The formulation of the embarkation plan is the responsibility of the BLT commander. The BLO is the BLT commander's chief planning assistant. The embarkation plans support the debarkation plans. All loading plans are subject to approval by the commanding officer of the ship because he is responsible for the safe loading of his ship.

66. LOADING FORMS

a. To standardize the preparation of loading plans, certain forms are used by all services. These forms are prepared by company and detachment commanders in the embarkation team—

(1) Unit personnel and tonnage table.
(2) Vehicle summary and priority table.
(3) Cargo and loading analysis.
(4) The cargo manifest.

b. The following forms are prepared by the BLO and generally are included as annexes to the BLT embarkation order:

(1) Consolidated unit personnel and tonnage table.
(2) Consolidated embarkation and tonnage table.
(3) Consolidated vehicle summary and priority table.
(4) Consolidated cargo and loading analysis.
(5) The stowage diagram.
(6) The profile loading diagram.
(7) Consolidated vehicle table.

67. UNIT PERSONNEL AND TONNAGE TABLE

a. This form (fig. 20) is prepared by the commander of each unit or detachment to be embarked aboard the transport and is submitted to the BLT commander for consolidation. It then becomes the basis for the entire loading plan. It should be noted that the weights and measurements to be entered are the actual weights and dimensions of the item of equipment when it is ready for loading. Weights

UNIT PERSONNEL AND TONNAGE TABLE

	Gen ___ Col ___ LtCol 1		Total Officers	WO 88		Total Enlisted		Total Personnel	
	Maj 2 Capt 12 Lt 24 WO ___		44	Other Enl 1010		1098		1142	
	LINE		STANDARD CARGO			Specially Prepared Cargo (Pallets, Heavy Lifts, etc.)			
			Cu.Ft.	Wt.(lbs)		No.	Cu.Ft.	Wt.(lbs)
TROOP SPACE CARGO	1	Baggage	3947	91360				
	2	Office Equipment	259	2470				
	3	Initial Combat Equipment	657	9826				
	4	Total Troop Space Cargo	4913	103656				
UNIT GENERAL CARGO	5	Organizational Equipment	1020	12570				
	6	Mess Equipment	650	9602				
	7	Camp Equipment	28	615				
	8	Special Equipment	18	600		3	720	4050
	9	Aviation Materiel						
	10	Vehicles(Towed Guns,etc)	35047	241838		X	X	X
	11	Total Unit General Cargo	36803	315285		3	720	4050
BULK GENERAL CARGO: AMMUNITION	12	Ammunition(Small Arms)	1378	24000		15	1440	45000
	13	High Explosives	1044	35442		35	3360	105000
	14	Pyrotechnics & Fuzes						
	15	Total Ammunition	2342	57942		50	4800	150000
BULK GENERAL CARGO: OTHER	16	Gasoline	1115	36157		8	768	24000
	17	Other Petroleum Products	337	15440		2	192	6000
	18	Water	518	20322		5	480	15000
	19	Other Liquids						
	20	Rations	1268	45820		2	192	6000
	21	PX Supplies						
	22	Signal	168	4696				
	23	Engineer						
	24	Ordnance	25	1102				
	25	Motor Parts						
	26	Medical	100	1320				
	27	Chemical						
	28	QM Supplies (General)						
	29	Total Other Cargo	3531	126887		17	1632	51000
	30	TOTAL CARGO (Add lines 4,11,15, and 29)	47634	603820		70	7152	205050
	31	Total Short Tons	x	301.91		x	x	100.5
	GRAND TOTAL	Sq. Ft.	Cu.Ft.	Wt.(lbs)		Short tons		Meas/ tons	
		5833	54791	808870		402.41		1369.3	

SUBMITTED BY /s/ John Jones BnLO
(SIGNATURE)

UNIT BLT 3-17 CERTIFIED /s/ John Smith COMMANDING
(SIGNATURE)

NAME OF SHIP USS JACKSON DATE 24 SEP 50

Figure 20. Unit personnel and tonnage table.

and measurements from statistical publications may be of limited value since they may not consider the combat loads of vehicles, organic changes of models or field alterations (towing rings, gun pedestals, and

other attachments) that may materially change the weights and dimensions.

b. The UP&T table is divided into two sections—the upper part (lines 1 through 11) and the lower part (lines 12 through 29).

c. The upper part is used to assemble information covering the table of allowance and special organic equipment of BLT units. Data contained in these lines is assembled by the units concerned. The lower part is used to assemble information about supplies for the BLT.

d. After UP&T tables are received from each BLT unit, the BLO prepares a consolidated UP&T table, grouping all unit table figures. Figure 20 is adapted by writing the word *Consolidated* before *Unit Personnel and Tonnage Table.* The consolidated UP&T table contains the total figures of all cargo to be embarked by the BLT (or embarkation team).

e. The column on the extreme left of the UP&T table divides all cargo into stowage classifications. These stowage classifications are TROOP SPACE CARGO—cargo for stowage in troop spaces or other space permitting access during the voyage; UNIT GENERAL CARGO—hold-stowed cargo organic to individual units; BULK GENERAL CARGO—expendable hold-stowed cargo for the landing team as a whole (this cargo is further subdivided as shown in figure 20).

f. Palletized cargo and heavy lifts are called specially prepared cargo. Heavy lifts include all cargo packages, other than pallets, weighing more than 800 pounds or occupying more than 275 cubic feet. The length, width, and height of each heavy lift are

listed on the vehicle summary and priority table after the vehicles are listed. Other cargo is called standard cargo.

g. The UP&T table lines are analyzed as follows:

(1) Line 1—*Baggage*—all individual clothing. bags, trunks, foot lockers, and bedding. It is considered to average 3.5 cubic feet and 80 pounds per person. To obtain baggage space and weight data, multiply the above figures by the total personnel to embark on the ship.

(2) Line 2—*Office Equipment*—all office equipment and supplies necessary for administration during the voyage, such as field desks, typewriter chests, and mimeograph machines. Crated office supplies and equipment to be hold-stowed are entered on line 5.

(3) Line 3—*Initial Combat Equipment*—only those items carried ashore by assault troops and needed in the early stages of fighting. This equipment consists of mortars, machine guns, flame throwers, fire control instruments, engineering tools, communication equipment, and medical supplies needed before any vehicles are landed. It does not include individual equipment or items loaded on trucks. This equipment has the highest priority and generally is stowed in troop spaces where it is available for maintenance during the voyage.

(4) Line 4—*Total Troop Space Cargo*—the total cubic feet and weight of lines 1, 2, and 3.

(5) Line 5—*Organizational Equipment*—all organizational equipment authorized by tables of allowance and not entered separately on the UP&T table (lines 2, 3, 6, 7, 8, 9, or 10). Tool chests, maintenance equipment and supplies, cleaning and preserving materials, and organizational combat equipment are listed on this line.

(6) Line 6—*Mess Equipment*—all equipment needed to operate a mess in the field. This equipment consists of field ranges, kitchen equipment, and screening. Rations and cooking fuels are not included with mess equipment—see lines 16 and 20.

(7) Line 7—*Camp Equipment*—all equipment and construction materials, excluding mess equipment required to establish a temporary camp in the field. Camp equipment includes tentage with poles and pins, portable latrines, and other supplies for use in temporary camp construction.

(8) Line 8—*Special Equipment*—all equipment and supplies specifically authorized for an operation that are not covered by tables of allowance. Special equipment includes fortification materials, barbed wire, and sand bags; building materials such as cement, lumber, and pipe; and other special authorized materials required to construct semipermanent and permanent installations.

(9) Line 9—*Aviation Material*—all organic light aircraft and all aviation general cargo. It consists of spare engines and structural

spares, special aircraft tools, and other special aeronautical equipment and supplies.

(10) Line 10—*Vehicles*—all uncrated vehicles and track laying equipment, self-propelled or towed. If a vehicle is loaded with cargo, the cargo weight is shown on the appropriate line of the UP&T table. For example, the weight of mess equipment loaded in a vehicle is included in the total weight of mess equipment listed on UP&T line 6 and is not included in line 10. The cargo loaded in vehicles is shown in figure 24. For loading purposes, vehicles include trucks, tanks, guns and howitzers, wheel-mounted generators, hand carts, trailers, skid-mounted distillers, and all other uncrated equipment not entered elsewhere. Items included on line 10 are listed individually with specific measurements on figure 25.

(11) Line 11—*Total Unit General Cargo*—the cubic feet and weight of lines 5 through 10.

(12) Line 12—*Ammunition (Small Arms)*—all small arms ammunition (.50 caliber or smaller).

(13) Line 13—*High Explosives*—all high explosives such as artillery and mortar ammunition, grenades, powder, propelling charges, bombs, primacord, and dynamite.

(14) Line 14—*Pyrotechnics and Fuzes*—all sensitive high explosives like pyrotechnics, fuzes, and blasting caps that require special stowage in a pyrotechnic locker.

(15) Line 15—*Total Ammunition*—the total cubic feet and weight of lines 12, 13, and 14.

(16) Line 16—*Gasoline*—all gasoline in cans or drums.

(17) Line 17—*Other Petroleum Products*—all other petroleum products like Diesel fuel, lubricating oils, and greases, in cans or drums.

(18) Line 18—*Water*—all water in cans, drums, or trailers.

(19) Line 19—*Other Liquids*—all other liquids including acids, paint, alcohol, chemical warfare liquids, and flame thrower fuel.

(20) Line 20—*Rations*—all types of rations including rations for initial issue to troops before debarkation, hospital rations, and war dog rations.

(21) Line 21—*PX Supplies*—all post exchange supplies.

(22) Line 22—Signal—all signal maintenance and replenishment supplies and equipment. Such items include telephones, radios, spare parts, and batteries.

(23) Line 23—*Engineer*—all engineer maintenance and replenishment supplies and equipment. Such items include spare parts for engineer equipment and engineer general supplies.

(24) Line 24—*Ordnance*—all ordnance maintenance supplies and equipment.

(25) Line 25—*Motor Parts*—all maintenance spare parts for motor transport and other major equipment not entered elsewhere.

(26) Line 26—*Medical*—all medical supplies and equipment such as splints, bandages, tapes, stretchers, and portable operating tables not listed elsewhere.

(27) Line 27—*Chemical*—all dry chemical warfare maintenance supplies and equipment, including decontamination materials, gasproof curtains, dust respirators, gas alarms, and gas masks.

(28) Line 28—*QM Supplies (General)*—all quartermaster maintenance supply and equipment (general), including additional individual entrenching tools and equipment.

(29) Line 29—*Total other Cargo*—the total cubic feet and weight of lines 16 through 28.

(30) Line 30—*Total Cargo*—the total cubic feet and weight of all cargo (lines 4, 11, 15, 29).

(31) Line 31—*Total Short Tons*—the short tons of standard and specially prepared cargo.

(32) *Grand Total*—the square feet of line 10, and the grand total in cubic feet, weight in pounds, weight in short tons (2,000 lbs.), and measurement tons (40 cubic feet) of standard and specially prepared cargo.

68. CONSOLIDATED EMBARKATION AND TONNAGE TABLE

This table (fig. 21) lists all units embarked in a ship, including the total personnel, total cubic feet, square feet, and short tons of cargo for the units concerned and for bulk general cargo. It is prepared by the BLO from data obtained from the unit personnel and tonnage tables.

CONSOLIDATED EMBARKATION AND TONNAGE TABLE

NAME OF SHIP APA 64

ORGANIZATION	PERSONNEL				CARGO	
	OFF	ENL	TOTAL	SQ. FT.	CU. FT.	SHORT TONS
Hq Co, 3d Bn, 1st Inf	7	113	120	930	9593	54.4
Hq Co, 1st Inf	8	34	42	58	520	11.7
Co I, 1st Inf	5	160	165	58	1042	24.4
Co K, 1st Inf	5	164	169	59	1056	25.2
Co L, 1st Inf	5	158	163	58	1002	24.6
Sv Co, 1st Inf	3	15	18		60	2.5
1st Plat, Hv Mort Co, 1st Inf	1	38	39		24	.6
TOTAL	44	1098	1142	5833	54791	402.41

Figure 21. Consolidated embarkation and tonnage table.

69. VEHICLE SUMMARY AND PRIORITY TABLE

This form (fig. 22) is prepared by the commander of each unit or detachment that is to be embarked aboard the transport. It is submitted to the BLT commander. The unit or detachment commander lists each vehicle to be loaded in the desired unloading priority. A complete description is made for each vehicle to include the length, width, height, square feet, and cubic feet. He lists the proposed

vehicle load by cargo type, number of containers, cubic feet, and cargo weight in the "cargo loaded in vehicles" column. Both the gross weight and net weight of the vehicle are shown on this form. The net weight of the vehicle plus the weight of the cargo loaded in the vehicle equals the gross weight. The "where stowed" column is left blank on this form but is filled in on the "consolidated vehicle summary and priority table." Heavy lifts are listed on this form, giving only the length, width, and height of each lift. Heavy lifts are listed after the vehicles.

70. CARGO AND LOADING ANALYSIS (C&LA) FORM

a. This form (fig. 23) assists the troop commander in coordinating with the commanding officer of the ship to assure the safe and proper loading of the transports. It is prepared by the commander of each unit or detachment that is to be embarked aboard the transport. It is submitted to the BLT commander. The C&LA form provides a breakdown of all cargo (except vehicles) listed by cubic feet and weight on the UP&T table. It is comparable to a voucher, receipt, or manifest in support of these figures. The C&LA form gives detailed data on cargo by types, and is of greatest value for loading supplies such as rations, fuels, and ammunition. The UP&T table lines 12 through 14 and 16 through 28 are developed in detail on the C&LA form; the UP&T table lines 1 through 3 and 5 through 9 are entered on the C&LA form, but may be entered by the number of containers and need not show in detail the container content. The UP&T

VEHICLE SUMMARY AND PRIORITY TABLE

Pri. No	DESCRIPTION: Vehicle Type	DESCRIPTION: Organization	DESCRIPTION: Serial Number	VEHICLE: Length	VEHICLE: Width	VEHICLE: Height	VEHICLE: Sq.Ft.	VEHICLE: Cu.Ft.	VEHICLE: Net Wt. of Vehicles	CARGO LOADED IN VEHICLES: Type	CARGO LOADED IN VEHICLES: No. of Cont.	CARGO LOADED IN VEHICLES: Cu.Ft.	CARGO LOADED IN VEHICLES: Gr.Wt. of Vehicles	CARGO LOADED IN VEHICLES: Where Stowed
1	Bulldozer(D-4)	SP		10'9"	5'2"	5'1½"	52.25	269.6	10,709					4-D
2	Bulldozer(D-7)	SP		13'6"	8'4"	6'8"	112.5	750	25,470					3-E
3	½-ton Trk	TACP	40156320	10'11"	5'2"	4'4"	56.4	244.4	2,440	Am	2	2.4	3420	2-D
4	¼-ton Tlr	TACP	401618246	9'½"	4'8"	3'4"	42	115.5	550	Misc		27	1050	2-D
5	M29C	SP	40163297	16'	6'	5'5"	89.6	528.6	5,975	Am"	6	4.8	6226	7-D

Figure 22. Vehicles summary and priority table.

CARGO AND LOADING ANALYSIS

NAME OF SHIP APA 16

UP&T Line No.	ORGANIZATION	DESCRIPTION	STANDARD CARGO				SPECIALLY PREPARED CARGO (Pallets, Heavy Lifts, etc.)				Where Stowed
			No. of Containers	Rounds or Gallons	Cu. Ft.	Wt(lbs)	Number	Cu. Ft.	Wt(lbs)	Rounds or Gallons	
12	Co A	Am cal .30, carb	19	51,300	21	2100					#3, 2d deck
----	----	---------	--	------	--	----					----------
----	----	---------	--	------	--	----					----------
----	----	---------	--	------	--	----					----------
16	Co D	Cas, 80-Cct (5 gal cans)	24	120	22.8	1C05					#4, 3d Deck

Figure 23. Cargo and loading analysis.

table line 10 (vehicles) is not listed on the C&LA form since the detailed information of vehicles is shown on the vehicle summary and priority table. Cargo loaded in vehicles is shown separately from other cargo of the same UP&T number. In structure, the C&LA is a recapitulation and elaboration of the UP&T table, providing space for more detailed information.

b. The columns are analyzed as follows:

(1) *Line Number*—entry under this heading corresponds to the line number of the UP&T table.

(2) *Organization*—name of unit to which the cargo belongs.

(3) *Description*—corresponds to description on the UP&T table with a further breakdown, using the table of allowance or other supply and equipment nomenclature; for example—

HIGH EXPLOSIVES
60-mm Mortar
Shell, HE, M49A2, w/PDF, M52A1
GASOLINE
80 Octane (5-gallon drums).

(4) *Number of Containers*—the number of containers (boxes, drums, cans) in which the cargo is packed.

(5) *Rounds or Gallons*—the total number of rounds or gallons in the containers.

(6) *Cubic Feet; Weight (lbs.)*—the cubic feet and weight in pounds of each particular listed group of items. The total cubic feet and weight of items entered for each line

number equals the cubic feet and weight of the corresponding UP&T table line number.

(7) *Standard Cargo*—all items in normal loose packaging like boxes, drums, and cans.

(8) *Specially Prepared Cargo*—cargo on pallets and heavy lifts. Each type of cargo is grouped separately from other types; for example, pallets are listed separately from heavy lifts.

c. This form is mimeographed back-to-back, thus eliminating extra sheets.

71. CONSOLIDATED VEHICLE SUMMARY AND PRIORITY TABLE

The BLT commander is responsible for the preparation of this table. It lists all vehicles to be embarked according to the unloading priority, the vehicle type, the serial number, and the cargo to be loaded in vehicles. The BLT commander may reduce loads proposed by detachment commanders or may add loads at his discretion. This form, when completed, contains a complete and final list of all cargo loaded in vehicles. The BLO enters the characteristics of each vehicle and the gross weight of vehicles (gross weight determined by adding the net weight and the cargo weight) and fills in the *where stowed* column after the tentative stowage diagram has been completed.

72. CONSOLIDATED CARGO AND LOADING ANALYSIS

After the BLO completes the consolidated UP&T, he prepares a consolidated cargo and loading analysis. Figure 23 is adapted by writing the word *con-*

solidated before *cargo and loading analysis.* This form provides a breakdown of all cargo listed on the consolidated UP&T except for vehicles (line 10). The cargo loaded in vehicles is shown separately from other cargo of the same UP&T line number. The *where stowed* column shows the priority number of the vehicle in which the cargo is loaded as well as the hatch level where the vehicle is stowed. The data on vehicle loads is obtained from the consolidated vehicle summary and priority table. After the tentative stowage diagram is complete, the BLO completes the *where stowed* column by entering the location of vehicles and other cargo. For example—

UP&T Line No.	Organization	Description	No. of Containers	Cu. Ft.	Wt (lbs)	Where Stowed
5	Co A, 1st Bn	Orgn Equip	5	20	1, 000	TRK #31 #1 1st Plat
5	Co A, 1st Bn	Orgn Equip	20	80	4, 000	#1 1st Plat
			Total	100	5, 000	

The 100 cu. ft. and 5,000 lbs. are the same figures as found on line 5 of the UP & T table.

73. STOWAGE DIAGRAM

The form for the stowage diagram (fig. 24) is a scale drawing (⅛ in. equals 1 ft.) of each hatch level, containing the over-all dimensions of the compartment together with the cubic feet, square feet, boom capacity, and minimum clearance to coaming, girders, and boards. In completing this

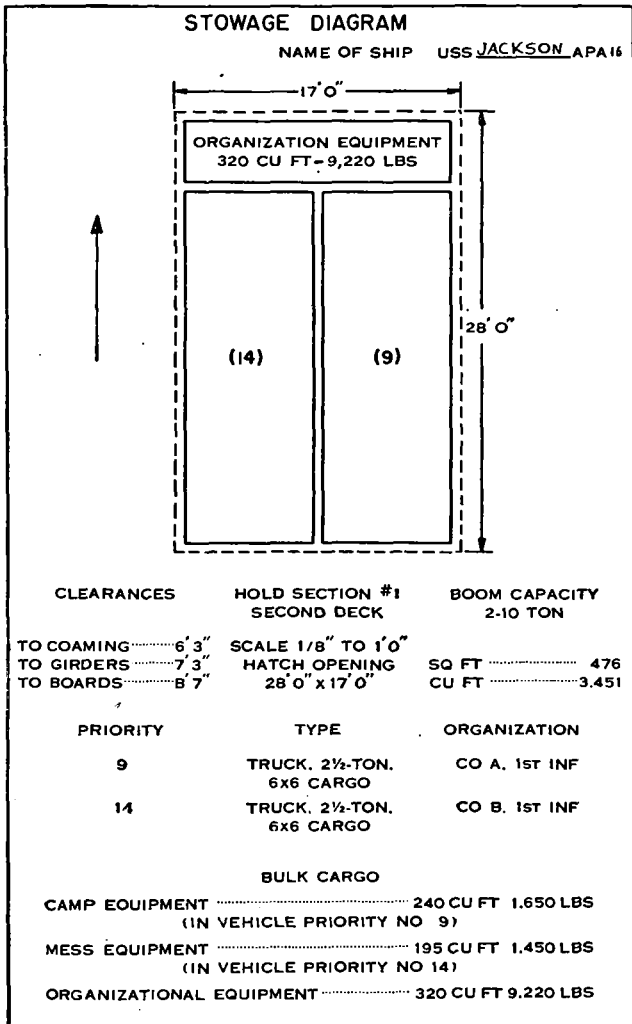
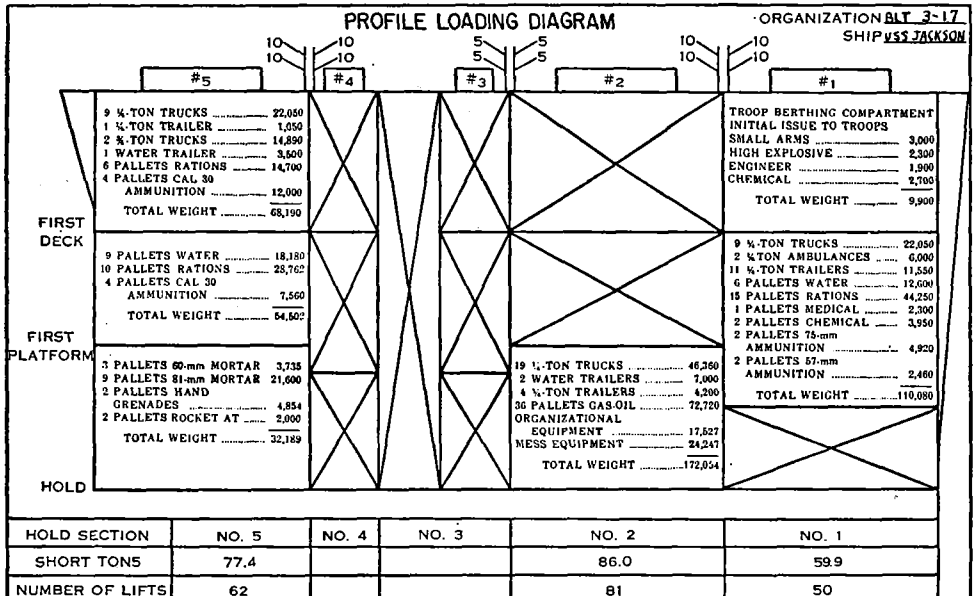


Figure 24. Stowage diagram.

diagram, the BLO prepares templates to represent all vehicles. When the stowage diagrams are made, the templates of the vehicles are traced into their relative positions on the hatch level diagrams. Vehicle templates are drawn to a scale of ⅛ inch equals 1 foot, and show the vehicle priority number. The priority number, description, and organization to which the vehicle belongs is shown in the lower part of each diagram. (If the diagram is too crowded, this information can be placed on the reverse side.) When general cargo occupies certain parts of a hatch level, it also is shown on the hatch level diagram, together with the cubic feet, weight, and, if palletized, the number of cubic feet and weight of pallet. General cargo is shown along with the vehicles at the lower part of each diagram. When cargo is loaded in vehicles, the priority number of the vehicle in which the cargo is loaded also is shown.

74. PROFILE LOADING DIAGRAM

The form for the profile loading diagram (fig. 25) gives the over-all picture of the completed load. It is a distorted profile view of the ship, showing the holds occupied by cargo and minimizing the spaces occupied by personnel and the ship's stores. All general cargo and vehicles are listed by types and weight. Total vehicles by type, loaded in the same hatch level, are listed showing the gross weight of total vehicles. Each vehicle is counted as one lift. Consequently, to determine the over-all picture of the number of lifts for unloading, add the number of vehicles and the number of specially prepared packages to the short tons of bulk standard cargo.



HOLD SECTION	NO. 5	NO. 4	NO. 3	NO. 2	NO. 1
SHORT TONS	77.4			86.0	59.9
NUMBER OF LIFTS	62			81	50

Figure 25. Profile loading diagram.

The lower part of the profile loading diagram shows the number of short tons and the number of lifts in each hold section.

75. CARGO MANIFEST

This form (fig. 26) is prepared by all unit commanders as a record of the supplies and equipment to be loaded, and as an aid in preparing other forms.

CARGO MANIFEST

ORGANIZATION Co L, 1st Inf SHIP APA 64

UP&T Line No.	BOX NO.	DESCRIPTION	Cu.Ft.	Weight
--				
--				
--				
--				
--				
5	8	C & P Material	4.0	50 lbs
6	14	Field Range, M1937	17.0	355 lbs
6	16	3-Cans, nesting, 32-gal	18.4	75 lbs
6	17	6-Cans, water, 5-gal	6.4	370 lbs
--				
--				
--				
--				
--				
--				

Figure 26. Cargo manifest.

The information entered is the UP&T line number, serial number of box or container, a brief description of the contents, the cubic feet, and the weight of each individual container of organizational equipment to be embarked.

76. PLANS FOR EMBARKATION OF TROOPS

a. The battalion S1 is the BLT billeting officer and is charged with formulating the plans for troop embarkation. In this case, he is an assistant to the BLO. Before he can make these plans, he makes a survey of all berthing facilities aboard the BLT's ships. He checks the ships' data supplied for billeting against the actual survey. He does this to make sure that any modifications in the compartments have been included in the figures he has been given.

b. The troops are billeted aboard ship to facilitate their debarkation according to the tactical plan. As the troops debark by boat teams, the teams are quartered in compartments having direct access to their debarkation stations.

c. The troop embarkation is planned to begin at the latest possible time to prevent interference with the loading of equipment and supplies. Therefore, the billeting officer plans to minimize any time lost in conducting boat teams to their compartments and in forming boat teams before coming aboard. He does this by including in the plans provisions for the troops to arrive at the gangplank in boat team formation and in proper sequence for loading. He plans for guides who are well-oriented in their duties and for a rapid and accurate method of checking the men aboard.

77. PLANS FOR MOVEMENT TO OBJECTIVE

The BLT staff plans for troop administration during the movement to the objective and during the final preparation for the landing. The battalion S1 makes plans to establish the command post, mess, and guard aboard ship. The battalion S3 plans for the orientation of troops in the tactical plan, inspections, drills, rehearsals, and physical training. The battalion S2 plans the intelligence orientation. The battalion communication officer plans the establishment of the troop message center. The battalion surgeon provides a medical plan for the voyage. The battalion chaplain provides for welfare activities, religious services, and special services events.

78. UNLOADING PLANS

a. Unloading plans normally supplement the debarkation plans. They provide for the emergency supplies required ashore by the BLT during that period after landing when it operates independently. Unloading becomes the responsibility of RCT headquarters upon its arrival ashore.

b. Of necessity, these unloading plans are governed by the anticipated needs ashore. The plans are flexible to meet any contingency and, at the same time, they consider economy of shipping space. The unloading plans of higher commanders and the emergency supply plans for the operation are studied carefully before the BLT unloading plan is made. These plans are affected by the type of mission assigned to the BLT. If the BLT lands on an isolated beach or is used on an independent mission, the BLT commander may be required to plan the complete

unloading of all vessels that support his unit. When the BLT is part of a large landing force, its unloading plans may consist of nothing more than plans for unloading the supplies that accompany the assault units ashore.

c. The supplies and equipment that most concern the BLT commander are the limited amounts of those high priority items critical to the early success of his unit ashore.

79. PLANS FOR SHIP-TO-SHORE MOVEMENT OF SUPPLIES

Only the individual reserves of supplies for the BLT normally come ashore during the assault. General unloading of initial reserves for the BLT usually does not begin until elements of the regimental shore party land. This may not be until H-plus-3- to 6-hours. However, plans should, if possible, include the establishment of a floating dump in the vicinity of the transport control vessel. This dump consists of a number of landing craft or vehicles, each loaded with emergency supplies and equipment (primarily ammunition, water, and medical supplies) in balanced loads. If these supplies are needed ashore, they are called in by the battalion commander through the shore party. Plans also may include the use of barges to be cast ashore on the tide for emergency beach supply. This method may release landing craft and vehicles from the floating dumps for more important shuttle runs.

CHAPTER 4

PREPARATION OF PLANS AND ORDERS

Section I. BLT OPERATION PLAN AND ORDER

80. ORDERS FOR AMPHIBIOUS OPERATIONS

Orders from higher commanders may influence the small-unit scheme of maneuver, thus limiting the courses of action open to the BLT commander. The BLT order is detailed to provide the maximum coordination between small units and their supporting fires, during the initial assault on the beach defenses and the terrain features that dominate the beaches. When the situation dictates, the BLT commander's order directs the small-unit scheme of maneuver to include the initial objectives of the boat teams and initial dispositions ashore of crew-served weapons.

81. OPERATION PLAN

a. The preparation of the operation plan and alternate plans for amphibious operations usually are carried on concurrently at several command levels. The BLT commander and his staff keep close liaison with higher commanders and with naval and air units whose plans directly affect the BLT's planning.

b. This concurrent planning at several command levels saves time, but makes frequent changes in plans the rule rather than the exception. These changes

are expected during preparation of the BLT plan. After receipt of the final plan or operation order from the next higher commander, the BLT plan is checked carefully and changed where necessary. There usually is not enough time to prepare a separate operation order based on the plan. Then the completed BLT operation plan becomes the BLT operation order at a specified time.

82. OPERATION ORDER

To avoid changes and amendments in the operation order after its issue, it is not distributed until just before embarkation. The BLT commander is responsible for the briefing of his command; he insures that every man is told what is to be done. For security reasons, as much of the briefing of troops as practicable takes place after final embarkation. If the voyage is too short for proper briefing or briefing aboard ship is impractical for other reasons, troops are briefed just before embarkation. Personnel briefed in this manner are sealed off from contact with other troops and civilians.

83. FORM AND CONTENT OF BLT OPERATION PLAN AND ORDER

The forms for the plan and order for an amphibious operation are the same as those for other operations as prescribed in FM 101–5. When the BLT is part of a larger landing force, much of the detail included in higher echelon orders need not be repeated at the BLT level. In this case, the BLT operation plan and order usually will consist of the basic five paragraphs, an operation overlay annex,

and a landing plan annex. A BLT conducting a separate operation would require a more detailed plan and order. The following prescribed techniques are used in preparing the operation plan and order:

a. Heading. The issuing headquarters is the official designation of the unit and usually is expressed in terms of the BLT organization; for example, BLT the 3d Battalion, 17th Infantry, would be written 3–17. When security requires, a code name is used. This is rare for a BLT, except when it is on an independent mission.

b. Body.

(1) Annexes referred to in paragraph 1 b may include those containing the information of supporting elements like naval gunfire, air, and artillery.

(2) Paragraph 2 includes reference to the time of landing in terms of H-hour and D-day.

(3) Paragraph 3 x may include reference to applicable alternate operation plans.

(4) Paragraph 4 usually refers to an administrative order or instructions and an embarkation order because these usually have too much detail to place in the body of the order.

(5) Paragraph 5 b includes the location of the BLT command post while afloat and may also designate the RCT and division command ships during the landing phase.

c. Ending. The distribution for an amphibious order is much wider than usual to provide coordination between air, land, and sea forces.

84. ANNEXES TO THE OPERATION ORDER, GENERAL

Annexes accompany the BLT operation order to preserve brevity, clarity, and simplicity in the body of the order. When the information in the order is of limited application or of a technical nature, annexes also are used to further explain the order. The number and details of an annex vary depending on the operation. The landing diagram (par. 46), the boat assignment table (par. 47), and the debarkation schedule (par. 48) may be separate annexes, or included as appendixes to a landing plan annex. Some of the annexes that may accompany the operation order at BLT level follow.

85. OPERATION OVERLAY MAP ANNEX

This annex to the operation order shows on an overlay or map the scheme of maneuver, zone of action, objectives, beachhead line, and other instructions or information that can be shown graphically.

86. INTELLIGENCE ANNEX

a. This annex normally includes pertinent parts of the intelligence annex from the RCT operation order. It also includes the BLT commander's intelligence requirements. It consolidates the instructions and information from higher commanders into concise statements for all BLT personnel. The enemy information that affects the BLT operation, or any part of the BLT, is covered in complete detail.

b. Maps, charts, diagrams of enemy installations, photographs, and extracts of reconnaissance reports

may be appended to the intelligence annex. Some of the items that may be included are—

(1) A summary of the enemy intelligence broken down to information of enemy ground, air, and naval forces, preceded by a general overall picture of the enemy situation. Situation maps and overlays may be used and appended to the annex. All estimated enemy capabilities that can affect the BLT are included.

(2) The essential elements of information. At BLT level the following elements may be included: beach defenses, hydrography of the beach approaches, location and type of obstacles ashore, ability of the enemy to counterattack, ability of the enemy to use armor and gas, and the location of mine fields.

(3) Reconnaissance, including instructions to unit reconnaissance elements, and information regarding the planned reconnaissance of higher commanders; air reconnaissance plans and the method of requesting air reconnaissance; and instructions for establishing and operating observation posts.

(4) Instructions for the physical security of communication intelligence and security monitoring units.

(5) Instructions for the handling of prisoners of war and captured documents, to include special instructions for the handling of captured cryptographic documents and cryptologic personnel.

(6) Information on the availability and distribution of maps and photographs for the operation.

(7) Counterintelligence instructions, including plans for handling classified documents, use of camouflage, censorship, countersigns, and the functioning of special counterintelligence agencies if attached.

(8) Public relations information and instructions.

(9) Reports required, including the method of reporting.

(10) Tide tables, sunrise and sunset tables, moonrise and moonset tables, weather and terrain studies, and intelligence estimates.

87. NAVAL GUNFIRE SUPPORT ANNEX

This annex to the operation order is an extract of the naval gunfire plan issued by the RCT commander. It contains all the gunfire information and instructions that, in any way, influence the actions of the BLT. This annex normally includes—

a. Organization of naval units for naval gunfire support.

b. Designation of ship or ships in direct support of the BLT including—

(1) Amounts of ammunition available for shore bombardment.

(2) Types of available ammunition.

(3) Smoke and pyrotechnic signals that will be used for naval gunfire control.

c. Appendixes that include charts and diagrams showing the stations of the fire support ships at

sea target areas where fires will be delivered, planned scheduled fires, and target priorities.

88. AIR SUPPORT ANNEX

This annex normally includes—

a. The organization of supporting air units.

b. The prearranged air missions including the time, numbers, of planes, and target areas.

c. Instruction for the use of the tactical air control party attached to the BLT.

d. Information on the method of securing air snpport.

e. Any special instructions regarding direct air support.

f. Reference to special signal and communication details of air-ground communication not covered in the signal annex.

89. ARTILLERY ANNEX

This annex shows the over-all plan for the use of all field artillery and antiaircraft artillery that may support the BLT. It normally includes—

a. The organization of the artillery for the operation.

b. The landing plan for artillery units.

c. The coordination between artillery and naval gunfire support.

d. Special instructions for forward observer parties.

e. Instructions on survey, registrations, fire control, priorities of fire, and restrictions on firing.

f. Appendixes showing planned concentrations, proposed position areas, and command installations.

g. Missions and use of AAA units.

h. Attachment of AAA units to RCT's and BLT's.

i. Restrictions on AAA day and night firing.

j. Instructions on the use of AAA to reinforce field artillery on ground targets.

k. Special instructions regarding fire while afloat.

90. LVT ANNEX

This annex is included when part or all of the assault waves land in LVT's. The LVT plan covers all details for loading, debarkation, and use of the LVT's in executing the ship-to-shore movement. It normally includes—

a. Organization of the LVT units for the landing operation.

b. Number of LVT's and the landing ships on which they are loaded.

c. Assignment or attachments to BLT's.

d. Landing diagram.

e. LVT transfer plans when personnel and cargo are to be transferred from small landing craft to LVT's at a transfer line offshore to cross a reef or land on a beach difficult for landing craft.

f. Refueling instructions.

91. SIGNAL ANNEX

a. This annex includes the information and instructions for the establishment and functioning of all signal communication affecting the BLT operation. Normally this annex includes—

(1) Establishment and functioning of all radio and wire nets.
(2) Use of pyrotechnics and pyrotechnic codes.
(3) Authentication procedures.
(4) Use of all codes and ciphers.
(5) Radio silence and signal security measures.
(6) Supply and replacement procedures for signal equipment.
(7) Reference to all SOI's in effect for the operation.
(8) Location and operation of any special signal installations ashore or afloat.

b. Signal charts, diagrams, and maps for all phases of the operation are included as appendixes.

Section II. ADMINISTRATIVE ORDER

92. PURPOSE OF THE ADMINISTRATIVE ORDER

The administrative order at BLT level is as brief as possible, including only information and instructions applicable to the BLT units. It generally is extracted from the RCT administrative order. The BLT commander has more administrative responsibility in amphibious operations than in normal land operations. The scope of this responsibility varies with the operation. For the form of the administrative order, see FM 101–5.

93. ANNEXES TO THE ADMINISTRATIVE ORDER

The administrative order for an amphibious operation contains, in addition to the normal annexes, the following:

a. Shore Party Annex. This annex covers all

elements of the division shore party plan pertinent to the BLT. It includes—

(1) Instructions for beach reconnaissance.
(2) Unloading plans (these may be appendixes).
(3) Beach organization.
(4) Traffic control.
(5) Beach security.
(6) Shore party communication (when not included in the signal annex).

b. Medical Annex.

(1) Amphibious operations require a special evacuation procedure, because early casualties are evacuated to ships for treatment. The information and instructions for this type of evacuation are contained in this annex. It includes—

(*a*) Designation of LVT's or landing craft for evacuation.
(*b*) Designation of transports and LST's to be used as temporary hospital ships.
(*c*) Use of any special medical units.
(*d*) Location of proposed medical installations ashore.
(*e*) Instructions pertaining to the attachment of medical personnel to BLT's and their release from attachment.
(*f*) Instructions for the use of any special medical supplies or equipment.
(*g*) Shore-to-ship evacuation plans.

(2) This annex should include instructions for sanitation and disease control, both aboard ship and after landing.

c. Individual Clothing and Equipment. This annex is a list of all individual clothing and equipment to be taken on the operation, showing complete details of how it is to be packed and where stowed aboard ship. This annex also prescribes the uniforms to be worn for embarkation, aboard ship, and for the landing. Details concerning the care, cleaning, and preservation of clothing and individual equipment also may be included.

d. Waterproofing Instructions. This annex contains all instructions and information concerning the waterproofing of vehicles and equipment. Normally, this annex for the BLT includes—

(1) Instructions for waterproofing vehicles before loading.

(2) Instructions for care and maintenance of waterproofed vehicles aboard ship, including additional waterproofing to be accomplished en route.

(3) Instructions for dewaterproofing after landing.

(4) Additional instructions for waterproofing other special equipment or weapons.

e. Instructions for Packing, Marking, and Crating Equipment. This annex consists of an extract of the instructions issued by the RCT commander and any additional information the BLT commander feels necessary. It normally includes—

(1) Specifications and instructions for constructing shipping crates.

(2) Instructions for marking equipment.

(3) Palletizing instructions, if applicable.

(4) Schedules of the times when each type of equipment is to be ready for shipment.
(5) Availability of tools and material.
(6) Restrictions on size, weight, and contents of shipping crates and boxes.
(7) Details for the inspection of all crated material.

Section III. EMBARKATION ORDER

94. EMBARKATION ORDER COORDINATES LOADING

a. The embarkation order is the commander's statement to his unit commanders to coordinate the loading of personnel, equipment, and supplies aboard ship.

b. Normally, the RCT is the lowest echelon to publish a complete embarkation order. The BLT order consists of extracts from the RCT embarkation order and includes additional information and instructions needed to load the BLT's ship or ships.

95. FORM AND CONTENT OF EMBARKATION ORDERS

a. There is no prescribed form for the embarkation order. Generally, it follows the form given in FM 101–5 for an administrative order. The embarkation order is supplemented by memorandums, standing operating procedures, and verbal instructions.

b. Details for embarkation include—
(1) Organization for embarkation.
(2) Amounts and types of equipment and supplies to be loaded.

(3) Procurement procedures and responsibilities.
(4) Preparation of personnel, equipment, and supplies for embarkation.
(5) Duties and responsibilities of personnel.
(6) Preparation and distribution of embarkation forms.
(7) Reports.
(8) Communication.
(9) Method of movement.
(10) Control of traffic during the loading.
(11) Assignment of shipping.
(12) Designation of specific ship assembly area (or areas) and embarkation point (or points).
(13) Time, date, and place for accomplishing assigned tasks.

c. The number of annexes accompanying the BLT embarkation order varies. Annexes that may accompany it are—

(1) *The march order.* This annex is published in the form shown in FM 101–5.
(2) *The embarkation schedule.* This annex contains the date, time, and place the cargo and troops will be assembled; and the date, time, and point of embarkation. It also includes instructions covering the organization and sources of personnel for advance details; the date, times, and personnel to whom the advance details report; the specific ship or ships to be loaded; the date and time the ships will be ready for loading;

and the latest date and time that loading will be completed.

(3) *The embarkation area overlay.* This annex includes the location of staging areas, ship assembly areas, embarkation points, routes, control and check points, and direction of traffic flow. The overlay shows only those locations of importance to the BLT. (If enough detail cannot be easily shown on one overlay, several overlays are prepared.) It may be issued in the form of a sketch. If this is done, distances between critical points are indicated.

(4) *The calendar of events.* This annex consists of a chronological listing of events for the embarkation; for example—

(*a*) Deadline for waterproofing vehicles.
(*b*) Deadline for preparing cargo for embarkation.
(*c*) Movement of advance details.
(*d*) Assembling of cargo.
(*e*) Start of cargo loading.
(*f*) Completion of cargo loading.
(*g*) Start of personnel embarkation.
(*h*) Completion of personnel embarkation.

(5) *The loading annex.* This annex consists of the embarkation forms prepared by the unit commanders of the embarkation team and the Battalion Loading Officer (BLO).

CHAPTER 5

EMBARKATION

Section I. LOADING OF EQUIPMENT AND SUPPLIES

96. METHODS OF TRANSPORT LOADING

Transport loading is done by four general methods—

a. Commercial loading is the method of loading troops and matériel on a cargo ship for the maximum use of cargo space without regard to the ease of debarkation for immediate tactical use. Economy of cargo space is the guiding factor. This type of loading is used only for resupply and shipment to a well-secured port.

b. Convoy loading is the method of loading when units and their matériel are embarked in ships of the same convoy. Supplies and equipment are not loaded for tactical debarkation. Troops may be on one ship and their equipment on another ship in the same convoy. This method saves ship space. However, since the troops and their equipment may be loaded on different ships, this method is used only for debarking troops at a single point in friendly hands.

c. Organizational loading is the method of loading troops and their equipment in the same ship when not loaded for tactical debarkation. It permits the debarkation of complete tactical units available for use as soon as the troops and equipment are assembled ashore. It also permits possible diversion of troop

units while en route to the originally scheduled destination.

d. Combat loading is the method of loading an assault unit with its essential combat equipment and supplies to permit an immediate and rapid debarkation in a desired tactical priority.

97. BLT IS COMBAT LOADED

a. The BLT is combat loaded for an assault landing. The troops are loaded by boat teams. They are billeted in compartments close to their debarkation stations and near ladders, companionways, and exits to be used for debarkation.

b. Supplies and equipment are loaded so that items needed early on the beach are on the top layer of each hold and can be unloaded according to a preplanned priority.

98. GENERAL PRINCIPLES OF TRANSPORT LOADING

a. Troops, equipment, and supplies are loaded to permit debarkation in the order required by tactical plans and to meet naval requirements of safety and stability.

b. When shipped to a port of embarkation, organizational equipment bears an identification code symbol indicating the unit to which each article belongs, shipment number (a number representing the transport group), and a letter indicating the particular unit. Additional letters are added to designate particular ships. For example, the number 1234–A–XA might represent the part of the 1st Infantry that is to be loaded into ship XA of transport group 1234.

Wheeled or tracked vehicles and artillery are marked with hold and debarkation priority numbers.

c. Organic light weapons and equipment to be carried ashore by assault waves are stowed where they are available for servicing en route, and for immediate debarkation.

d. Matériel and supplies are stowed as follows:

(1) Highest priority under the hatches and in space immediately accessible to them; lower priority, outward from the hatches.

(2) By layers with first priority on top.

(3) In groups separated by vertical partitions radiating from the hatch.

(4) In any combination of the above methods.

(5) Stowage begins in the wings and is completed near the hatches. The stowage diagram shows this loading order.

e. Waterproofed vehicles are loaded complete with combat loads, fuel tanks filled to 75 percent capacity, a reserve of fuel and lubricants, and emergency rations for the drivers. Drivers are embarked on the same vessels as their assigned vehicles.

f. To prevent shifting at sea, vehicles are loaded with axles across ship and are chocked or secured to stanchions or ring bolts. Generally, it is not practical to stow vehicles over or under other matériel.

99. ORGANIZATION FOR LOADING

Before loading begins, supplies and equipment to be loaded are assembled and arranged so that loading is continuous, once it is started. The area where the supplies and equipment are assembled is called the embarkation area. Within the embarkation area

there are embarkation points (docks, piers, or beaches) where the actual loading of ships is accomplished. An embarkation area should provide—

a. Housing, messing, and medical facilities.

b. Control points to control the flow of supplies and equipment to the embarkation point or ship assembly areas.

c. Ship assembly areas for temporary storage of equipment and supplies to be loaded on transports.

d. Transportation to haul supplies and equipment from ship assembly areas to the ships.

e. Areas where final waterproofing can be completed.

f. Refueling points for vehicles.

g. Facilities to prepare cargo not already processed for loading.

100. DIVISION LOADING OFFICE

Normally, the division transportation officer is the division loading officer (DLO). He supervises the loading in the division embarkation area. He also maintains an office in the embarkation area. His office keeps adequate records of cargo by types and destination, and coordinates and controls the flow of cargo from dumps to the ship assembly areas or embarkation points. This coordination and control results from close liaison between the DLO, the unit loading officers, and the port representatives. Unit loading officers submit periodic progress reports. When more cargo is received at a point than can be handled, the DLO's office is notified. The DLO then slows down or stops the dispatch of cargo to that area or point.

101. PILE TAG SYSTEM OF KEEPING RECORDS

a. The DLO's office maintains accurate records of the receipt and disposition of cargo by using the pile tag system. A pile tag is a form showing the type of cargo, the amount of cargo by number of items and weight, the ship assembly area where dispatched, the time of dispatch and receipt, and the signature of the dispatcher (fig. 27). Additional information required by special circumstances may be included. The pile tag may be reproduced locally.

b. These tags are used like any shipping ticket. For example, a truck driver drives into an ammunition dump to draw ammunition. The division ordnance officer's representative normally directs the loading and dispatching of the truck. He has a previously prepared extract of the cargo loading analysis, showing the exact amount of each type of ammunition going to each ship. Based on this data and on a running account of how much ammunition by type is already dispatched, he directs that the truck be loaded with a certain amount of ammunition. He fills out the pile tag in triplicate, keeps one copy for his own records, and gives two copies to the driver. The driver delivers one copy when he checks in at the DLO's office and turns in the final copy to the BLO at the proper ship assembly area. Thus, by use of the pile tag, an accurate record of ammunition sent and received is kept at the dispatching dump, at the DLO's office, and at the individual ship assembly area. The pile tag also serves as an inventory list for the receiving BLO.

PILE TAG.

SHIP ASSEMBLY AREA NO. 84 DATE: 10 DEC.
FROM: 452d DISPATCHING OFFICER Capt. Henry
TIME OF DISPATCH 1020 TIME OF RECEIPT 1135

AMOUNT	TYPE OF CARGO	WEIGHT
	Ammunition:	
20 boxes	T1 EDV	2220
20 crates	T1 EHD	1500
10 boxes	T1 EGK	1120
12 boxes	T2 AAD	1140
	Total	5980 lbs

Figure 27. Pile tag.

102. METHODS OF ASSEMBLING CARGO

Two basic methods are used in assembling cargo in an embarkation area.

a. Type assembly is the first method. By this system the principal classes of supply such as rations, ammunition, and fuel are assembled in central dumps in the embarkation area. When the BLT begins loading, it draws the amount it needs from the desired dump (fig. 28).

b. Unit assembly is the second method. By this system each ship has a designated area in the embarkation area, and the exact amount of each type of cargo to be loaded on that ship is assembled and temporarily stored in its designated ship assembly area. Trucks delivering supplies from supply points in the base camp or supply depots take their cargo to the designated ship assembly area. Before any ship begins loading, the cargo destined for that ship is collected, inventoried, and made ready for dispatch to the appropriate ship. When loading begins, direct routing of the trucks from the ship assembly area to the proper dock is possible. This makes it easier to control the movement of supplies and trucks.

c. Of the two above methods, the unit assembly method is the more rapid. The BLT is assigned a specific ship assembly area. In this area all equipment and supplies (hereafter called cargo) of the embarkation team are assembled. This cargo is arranged in hold lots and according to the priority that it will be loaded. The cargo is checked for completeness and readiness for loading. Completeness is established by checking the items on hand against

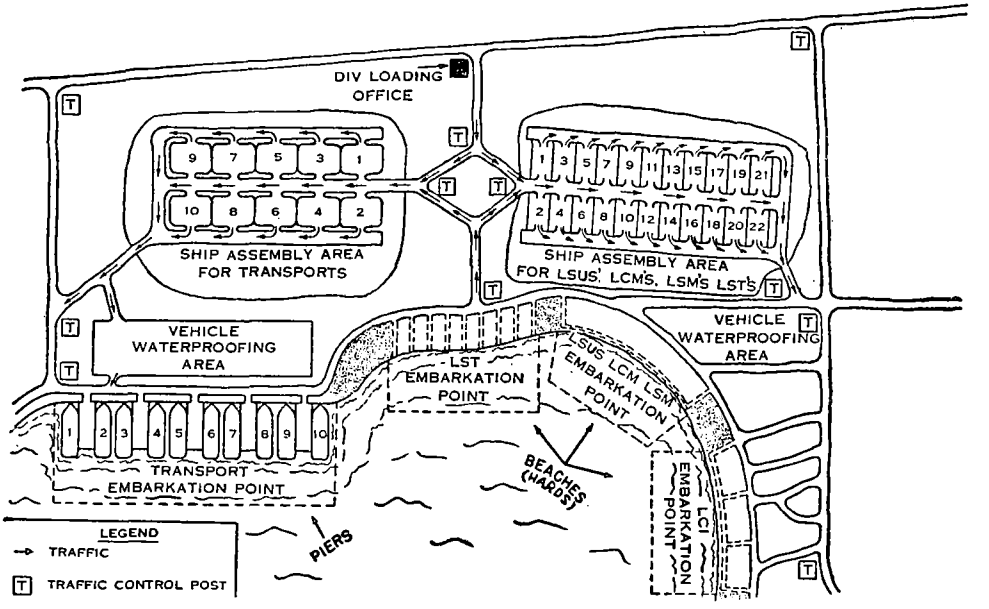


Figure 28. Typical embarkation area showing type assembly method of assembling cargo.

the loading and stowage plants. Readiness for loading is determined by checking the cargo to see if the required marking, banding, palletization, and crating is done.

103. LOADING DUTIES OF THE BLO

a. The BLO is in charge of the ship assembly area for his transport. During the actual loading, he places one of his assistants in charge of the ship assembly area and reports aboard ship to supervise the actual loading.

b. The BLO may have as assistants the battalion motor officer and the battalion pioneer and ammunition officer. The motor officer is concerned primarily with the preparation of the embarkation team vehicles. He is responsible for their waterproofing, their readiness for loading, and their dispatch for loading at the proper time. The pioneer and ammunition officer is mostly corncerned with cargo other than vehicles. He makes sure of the completeness, readiness for loading, and the dispatch of cargo for loading at the proper time. The motor officer uses his drivers to assist him. The pioneer and ammunition officer uses the pioneer and ammunition platoon for tasks assigned him. All personnel may be combined to perform a single task. When available, service troops or civilian labor may work in the ship assembly area, releasing BLT personnel for other duties. In any case the BLO checks and supervises the work.

c. Loading aboard the transport is done either by a ship's platoon or by civilian labor. At ports of embarkation, transportation corps personnel super-

vise and coordinate the loading and provide stevedores, either from port companies or civilian labor to load the ship. The transportation corps officer affiliated with the port and in charge of loading coordinates with the BLO and the embarkation officer to make sure that loading and stowage plans are strictly followed. The embarkation officer is a Marine Corps or Army officer, usually of the transportation corps, who normally is assigned to the staff of the commander of an assault transport. He acts as liaison officer between the BLO and the commander of the ship in all administrative matters. When civilian labor is used, members of the ship's platoon observe the loading to familiarize themselves with cargo stowage, because they normally unload the ship during debarkation. Transportation port companies or elements of them may accompany troop ships or board the ships in the rendezvous area to discharge the combat loads. A ship's platoon normally is assigned to each APA or AKA. The infantry battalion seldom has to load or unload its own cargo; however, it may be called upon for assistance.

d. Before the loading begins, the cargo is arranged by hold and platform or deck alongside the transport in the priority that it will be loaded. A constant flow of cargo to the ship's side is maintained. This requires close coordination and liaison between the BLO and his assistants in the ship assembly area.

e. If the transport is loaded offshore (loading in the stream), the cargo is placed on the beach by hold lots and in the priority that it will be loaded. The cargo is transferred from the beach to the transport by landing craft or landing vehicles.

104. MODIFICATION OF PLANS

Changes in loading and stowage plans can be made only with the joint concurrence of the BLT commander and the commanding officer of the ship. Loading and stowage plans are modified to show all authorized changes made during the loading.

Section II. EMBARKATION AND BILLETING OF TROOPS

105. PREPARATION FOR EMBARKATION

a. Embarkation plans enable troops to be loaded quickly and efficiently and billeted in proper compartments for rapid debarkation. Preparation for embarkation includes—

(1) Planning the movement to the embarkation point.
(2) Preparing troop space cargo such as barracks bags, bedding rolls, foot lockers, and office equipment for delivery to the embarkation point.
(3) Inspecting the troops for completeness of clothing, equipment, and supplies.
(4) Turning in all excess supplies or equipment.
(5) Issuing required supplies or equipment.
(6) Inspecting the physical fitness of BLT personnel.
(7) Revising the BLT passenger lists.
(8) Dispatching advance details to the transport for guard, billeting, and mess.
(9) Planning the closing of the area.

b. The BLT receives orders from the RCT commander directing its movement to the embarkation

point. These orders prescribe the method of movement.

c. Plans are made for the rapid assembly of *troop space cargo* so that it can precede the BLT to the embarkation area.

d. A *show down inspection* is made in the staging area to check the completeness of individual and organizational equipment and supplies. Shortages are filled at once. The excess equipment is taken up.

e. Only those persons who are physically fit and free from communicable disease are embarked. *Physical inspections* are made in the staging area.

f. Passenger lists show all personnel of each unit boarding a transport. These lists are prepared by each embarking unit; regulations prescribe that they be prepared alphabetically by rank. The number and disposition of copies of passenger lists normally are specified in orders of higher commanders.

g. The *advance details* for guard, billeting, mess, and loading troop space cargo aboard ship normally embark 24 hours before the BLT. The personnel in these details embark with all their equipment. Arrangements may be made to check them aboard the ship before the time the BLT embarks.

h. The BLT's marshalling area is policed before embarkation. Plans are made for a complete police by all troops and for a final check of the area by an officer. The officer is provided a detail to help him to make necessary corrections. This last minute check is made to make sure that the police is adequate and *that no matériel or documents are left behind to compromise the operation.*

106. SHIPBOARD BILLETING PLAN

a. Assignment of troop space aboard ship is done by a billeting plan prepared by the billeting officer. This plan is based on a previous study of the ship's characteristics and the general debarkation plan. The billeting officer is generally the BLT S1.

b. The billeting scheme permits the assembly and movement of boat teams to debarkation stations in the sequence required by the debarkation schedule. To prevent congestion, assault units that debark first are billeted nearest to the debarkation stations and those that debark last are billeted farthest from the debarkation stations.

c. Before embarkation a member of the troop billeting detail inspects all troop compartments and determines the actual number of available bunks. Variations from rated capacities are noted on the ship's characteristics sheet to prevent the assignment of men to spaces that are not available. The billeting officer determines the exact number of troops in each unit to be embarked.

d. Bunks are assigned to units by boat team blocks. Boat teams are kept together. All bunks are numbered.

e. Personnel performing special duty aboard ship and men on permanent detail about the ship are assigned to a specific area in each troop compartment.

f. The billeting plan designates a limited number of officers or noncommissioned officers to act as billeting assistants. The plan also provides for guides to meet units as they embark to conduct them to their assigned billets.

g. The billeting plan designates heads (latrines) and shower rooms to be used by the men in each troop compartment.

107. BILLETING LIAISON

a. The billeting officer establishes liaison with the BLO and the ship's embarkation officer. The BLO provides the billeting officer with copies of the ship's diagram and with other data.

b. Before embarkation, the troop executive officer, representing the BLT commander, visits the ship to inspect spaces and facilities to be used by troops. Accompanied by the ship's executive officer or first lieutenant, he inspects all troop compartments, bunks, heads, messes, staterooms, and cargo holds to determine their condition.

108. TROOP EMBARKATION

a. Before arriving at the pier, dock, or beach where embarkation is to begin, the troops are organized into the formation for embarkation. The BLT embarks in boat team formation. Boat teams are grouped according to the compartment in which they are billeted.

b. When the ship is at a dock, troops embark in echelons by troop compartments, using a gangplank. When the ship is in the stream, the troops are ferried out to it in landing craft. Upon arrival at shipside they embark by debarkation nets and accommodation ladders. LST's embark troops through their bows by a ramp to the tank deck. LCI's may load troops from a dock or pier by a gangplank, or from a beach by ramps located at the bow. Regard-

less of the system used, each person loaded is checked against the passenger list. Once embarked, individuals are not permitted to leave the ship. Organized details may leave the ship, but they are checked on and off each time they do so.

c. Checking troops aboard slows the embarkation unless it is well organized. In port, a checking officer representing the senior commander of the operation is stationed at the foot of each gangplank. This officer is accompanied by an officer from the unit being embarked. The unit officer identifies each passenger and speeds the check. Several methods to identify passengers may be used. One method is to have each man give his serial number when his name is called. Another is to call each man's last name and have him give his first name and middle initial. A third method is a card system whereby each embarking man hands the checker a card on which is recorded his name, rank, serial number, and organization. These cards then are checked against the passenger list.

d. Members of advance details are checked on the passenger list. Copies of the list are retained by the BLT commander, the ship commander, and the port authorities.

e. The first units to embark are those to be billeted the greatest distance from the gangplank or net at which they embark. Embarkation is speeded by immediately taking embarked troops to their compartments. Each unit is met by a guide and is led to its assigned compartment. To prevent confusion, ladders, compartments, and routes are marked and numbered. Upon reaching his compartment, each

man in the unit is assigned a numbered bunk. He is required to remain in that compartment until embarkation is completed.

f. For some operations, especially when units are not combat loaded, embarkation can be speeded by having each unit arrive in passenger list order.

Section III. COMMUNICATION

109. EQUIPMENT TESTING, INSPECTIONS, AND STOWAGE

a. Before embarking, BLT units make a final and complete test of all equipment, including batteries and spare parts. After the equipment is tested, it is checked to see that it is properly packed, waterproofed, fungiproofed, and marked for easy identification and correct stowage.

b. Communication equipment is loaded in spaces where it is readily available according to the tactical plan. Consideration is given to the accessibility of extra batteries, additional wire, and spare equipment.

c. The communication officer, with enough personnel, embarks before the troops to establish a smoothly functioning troop and joint communication system aboard ship. The BLT and ship's communication officers coordinate the space for the troop message center and the joint communication procedures.

110. COMMUNICATION IN EMBARKATION AREA

a. Communication required by the BLT in the embarkation area consists of communication between the loading officer and the loading points, within and

between loading points, and between the marshalling area and the loading officer.

b. The system installed by the BLT communication personnel within the embarkation area depends on the facilities supplied to the BLT by the shore party, the existing installations, RCT communication personnel, and the division signal company. In established ports, communication facilities normally will be provided by the port agency.

c. The BLT communication officer coordinates the systems with other signal and communciation officers.

d. If the amphibious operation is being conducted with an engineer amphibious unit, the greater part of the communication facilities at and between dock or loading areas is supplied by engineer signal personnel. Communication between the BLT staging area and the embarkation points is coordinated by the troop communication officers.

e. In amphibious operations not using an engineer amphibious unit, it may be necessary for landing force personnel to install communication facilities between marshalling areas and embarkation points, and within and between docks or loading areas.

111. COMMUNICATION ABOARD SHIP

Troop message centers, established before the embarkation of the troops, provide messenger service between naval and BLT units aboard ship. The detailing of messengers to the ship's communication office, radio room, or signal bridge is coordinated by the ship's communication officer and the BLT communication officer.

CHAPTER 6

MOVEMENT TO OBJECTIVE

Section I. SHIP ADMINISTRATION

112. SHIPBOARD LIFE IS ORGANIZED

Life aboard ship is, by necessity, highly organized. Problems arise from the restriction in area, the health and safety of the personnel, and the safety of the ship. Restriction in area raises problems in messing, recreation, sleeping, study, sanitation, health, physical fitness, and morale. The safety of personnel is directly connected with the safety of the ship. Safety of the ship is the paramount consideration of all on board. Good shipboard organization is reflected in good morale, physical fitness, training, and battle readiness of the troops.

113. THE SHIP'S REGULATIONS

Preparation and issuance of the ship's regulations is a responsibility of the commanding officer of the ship. Copies of the ship's regulations are issued to the BLT at or before embarkation. They prescribe the rules of government for embarked troops and generally include provisions regulating—

a. The ship's guard.
b. The troop mess.
c. The troop officer's mess.
d. Troop administration.

e. Communication.
f. Health and sanitation.
g. The billeting of troops.
h. Working parties and special details.
i. Cleaning and preservation.
j. The use of fresh water.
k. Life belts.
l. Military security.
m. Battle stations and general drills.
n. Uniforms.
o. The care of arms and equipment.
p. Abandon ship drill.
q. Inspections.

114. SHIPBOARD CONTROL

a. When the battalion landing team is embarked in an APA, the BLT commander normally is designated as the CO of troops, and commands all troops embarked on the ship during the movement phase. He is assisted by the BLT staff and the special staff, including the battalion loading officer, the ship mess officer, the billeting officer, and the officer of the day.

b. The headquarters of the BLT commander is located in the BLT command post aboard ship. All administration for the embarkation team is performed by this headquarters. This administration includes: custodianship of morning reports; maintenance of records, reports, and journals; securing details for the ship's guard, mess, police, or work parties; supervision of health, sanitation, and troop welfare; distribution of pay; exchange of currency; and the preparation of reports for the commanding officer of the ship or other commanders.

c. Each organization in the embarkation team establishes and maintains a command post in the vicinity of the compartment where troops of the organization are billeted. All messages from the BLT command post are routed to organization command posts.

d. The BLT communication officer is responsible for establishing and supervising the troop message center aboard ship. This message center usually opens before the troops embark and is located in the vicinity of the BLT command post. Each organization in the embarkation team provides the troop message center with at least one messenger. These messengers are detailed to the ship's communication office, radio room, and signal bridge as needed for handling messages for the embarked troops. The BLT communication officer and the ship communication officer exchange rosters of officers, code designations of units, and other data for efficient routing of messages.

e. The troop message center may be supplemented by the installation of field phones between command posts, and the use of the ship's interior communication system.

f. When the battalion landing team is embarked on more than one ship, the BLT commander designates a CO of troops for each ship, to perform the duties outlined above.

115. SHIPBOARD MEDICAL SERVICE

a. The BLT commander is responsible for the health, hygiene, and sanitation of all embarked troops. The troop medical officer holds frequent in-

spections and informs the commander of the health, sanitation, and hygiene of the troops. He gives special attention to the:

(1) Adequacy of ventilation in troop compartments.

(2) Sanitation of troop galleys, mess spaces, compartments showers, and heads.

(3) Personal hygiene of the troops.

b. The troop medical officer coordinates with the ship's medical officer on all matters pertaining to the health of embarked troops. Consistent with the ship's orders, the following sanitary measures are enforced:

(1) Communicable diseases are reported at once to the BLT commander.

(2) Members of the troop mess detail contracting any disease are immediately relieved from duty.

(3) Bedding is aired frequently.

(4) Mops (swabs) are aired and sunned on the weather deck daily.

(5) Suitable clothes lines are rigged on deck. Wet clothes are not kept in berthing spaces.

(6) During the day, weather and space permitting, the troops are kept in the open air.

(7) All troops decks are policed several times daily, and washed down as frequently as necessary to keep them sanitary.

(8) Arrangements are made with the commanding officer of the ship for the troop medical officer to use the ship's facilities for troop medical care. Sick call is held daily at a time designated in the ship's orders. Troop

medical personnel are used to supplement the ship's medical personnel. The adequacy of the ship's medical supplies to meet troop requirements is determined by the troop medical officer before embarkation.

116. SHIPBOARD GUARDS

a. The BLT commander establishes a ship's guard before the troops embark. The ship's guard is large enough to man all sentry posts designated by the ship's captain. He gives the BLT commander the special orders for each sentry post. The BLT commander establishes additional sentry posts needed to maintain discipline, aid in administration, or safeguard equipment. The location and orders for such additional posts do not conflict with the ship's orders and regulations, nor with the ship's activities. A copy of the orders for each additional post is forwarded to the ship's captain.

b. The guard is formed daily, and at other times as directed by the BLT commander for inspection and instruction by the new Officer of the Day.

c. Guard duty is rotated to let all the men get shipboard training.

d. In actual operations and during training periods involving ship-to-shore exercises, the BLT commander recommends to the commanding officer of the ship the time when the ship's guard should be relieved.

e. Certain parts of the ship are placed out of bounds for all embarked troops. These are designated as *restricted areas* in the ship's regulations. Some of the most common are—

(1) The bridge, which is off-limits to all embarked personnel.
(2) Officers' living quarters, which are off-limits to enlisted men except when on a duty status.
(3) The engine room, which is off-limits to all embarked personnel.
(4) The gun tubs, which are off-limits to all embarked troops except those assigned as members of the gun crew on watch.
(5) The landing craft, which are off-limits to all embarked troops except when loading the landing craft.

117. SHIPBOARD POLICE

a. The BLT commander is responsible for the cleanliness and maintenance of all living compartments, washrooms, heads, holds, hatches, and deck spaces allotted to troops, and the ladders leading to them. Compartment commanders are assigned areas of police responsibility. The over-all policing of areas occupied or used by the troops is supervised and coordinated by an officer designated as the troop police officer.

b. Troop cleaning details are assigned daily to clean all troop compartments and other troop spaces. Enough cleaning details remain on board during final debarkation, except debarkation for combat or simulated combat, to clean all areas vacated by troops.

c. The BLO arranges with the ship's first lieutenant to procure cleaning gear for the troop cleaning details. This gear is returned to the ship's storekeeper before debarkation.

118. SHIPBOARD MESSING

a. The troop mess officer is a member of the BLT commander's advance detail. He is charged with making all arrangements for the troop mess. The troop mess detail, consisting of cooks, bakers, butchers, and messmen, reports aboard about 24 hours before the general embarkation of troops.

b. When making his feeding plan, the troop mess officer considers—

(1) The capacity of the galley for feeding the troops.
(2) The location of mess lines and procedures for their control.
(3) The rate of feeding troops.
(4) The size of the troop mess detail needed to supplement the ship's galley and mess force.

c. The troop mess of a transport cannot feed all of the troops at one sitting. Therefore, a system of scheduled messing is established to control the number of persons eating at any one time and to make sure that all troops are fed. One successful method is the *meal card* system. A different colored card is assigned each sitting. These cards are issued to the troops as soon as they embark. They are issued by color in compartment groups.

d. For example, assuming that 350 men can be fed at one sitting and that there are 925 men on the transport, three sittings are scheduled for each meal. A blue card is issued for the first sitting, a red card for the second, and a yellow card for the third. About twenty minutes before meal time, the first sitting is alerted by an announcement over the ship's public

address system, and the troops of specified compartments are ordered to go to their compartments.

e. When the actual time for feeding arrives, men are called to the troop mess by compartment groups. Only a few groups are called at a time to avoid excessive waiting. When a specific compartment or a part of it is called, the compartment leader guides his men to the troop mess, where each man's card is checked. Subsequent sittings are fed in the same manner.

f. Troop officers eat either with the ship's officers in the ship's wardroom or in a separate mess operated by the wardroom mess.

119. COMPARTMENT INSPECTIONS

a. The troop commander or his executive and a representative of the commanding officer of the ship make daily inspections of the troop compartments. During inspections the compartments are cleared of troops. Compartment inspections are conducted as follows:

(1) The troops clear the compartment decks of all equipment by taking it with them, by placing it on hatch covers, or by suspending it from bunk frames.

(2) All bunks are made up and secured.

(3) After the compartment is cleaned, the compartment cleaning detail and the officer in command of the unit billeted in the compartment stand by for inspection.

b. The inspecting officers inspect each compartment to see that the:

(1) Decks and bulkheads are properly policed.
(2) Equipment is not suspended from the overhead.
(3) Ventilation systems are undamaged and are functioning properly.
(4) Arms and equipment are properly stowed and secured to prevent damage to the ship or the equipment.
(5) Heads, shower rooms, and scuttle butts (drinking fountains) are policed and functioning properly.
(6) No wet swabs (mops), brooms, or laundry are present in any of the troop compartments.
(7) Paintwork and fittings are not defaced or damaged.

c. All damaged fittings, furniture, or appliances are reported.

Section II. PREPARATION FOR DEBARKATION

120. TRAINING CONTINUES ABOARD SHIP

The BLT commander uses every facility aboard ship to prepare his troops for their mission. He supervises the conduct of a comprehensive program of training to make sure that the troops are oriented, briefed, and rehearsed in the actual procedures to be carried out at the objective. Necessary training aids are loaded in troop compartments before embarkation.

121. ORIENTATION ON THE OPERATION

a. At the time of embarkation, the BLT commander and certain members of his staff are the only persons knowing the details of the impending operation. Once the embarkation is completed and the ship is underway, the troops are oriented on their destination and the detailed part they will play in the assault landing. The officers are assembled and informed of their destination, their mission, and the detailed plan for the use of their units. The troop officers instruct their troops on plans and orders they have received.

b. The BLT commander makes the arrangements with the ship's captain for the orientation of the ship's officers on the mission and the general plan of employment of the troops.

c. Training aids help greatly to orient the ship's and BLT personnel.

(1) Maps, relief maps, and aerial photographs of suitable size and number are displayed in parts of the ship where they may be studied by all. These aids show beaches, boundaries, zone of action, and the general scheme of maneuver.

(2) Deck maps, consisting of colored sketches of the landing beaches and terrain immediately inland, are invaluable as graphic and easily accessible training aids.

d. Last-minute orientation aboard ship, except when a long ocean voyage is being made, is usually inadequate. If necessary to orient troops before embarkation, the BLT commander, assisted by his staff, must take proper security measures.

122. SHIPBOARD TRAINING

a. Training aboard ship is designated to orient the BLT in the detailed plan for the assault landing, and to maintain physical fitness. The training program includes—

(1) Aircraft recognition, stressing identification of friendly and enemy aircraft that may be encountered in the objective area.

(2) Map reading and combat orientation. Instruction stresses familiarization with the maps and aerial photographs to be used at the objective.

(3) Intelligence instruction, covering indoctrination in the characteristics, customs, and language, both of the enemy and of civilian inhabitants of the objective area.

(4) Briefing of all personnel on the mission and detailed employment of all units.

b. Conditions aboard ship limit physical exercise and movement. To keep the troops physically fit for entry into combat, it is necessary to conduct a supervised program of physical exercise. The ship usually provides special facilities like climbing ropes, Jacob's ladders, and cargo nets for exercising the troops.

123. REHEARSALS

To make sure that debarkation at the objective area is rapid and efficient, day and night debarkation drills are held during the voyage. The first several drills consist only of walkthroughs to familiarize each boat team with its assembly area and the route

to its debarkation station. After the indoctrination phase is completed, day and night rehearsals are held with boat teams going to their debarkation stations. Drivers go to the hold or hatch where their vehicles are located. The ship's platoon reports to its unloading stations. (See paragraphs 128–151 for debarkation procedure.)

124. SECURITY

All matters pertaining to an amphibious operation are classified. Security measures enforced aboard ship include:

a. No articles will be thrown overboard.

b. Blackout discipline.

c. Possession of cameras by troops aboard ship is prohibited unless specifically authorized.

d. Troop mail is subject to existing censorship regulations, which are included in the ship's regulations.

125. EQUIPMENT AND PERSONNEL INSPECTIONS

a. Equipment and personnel inspections are made frequently to make sure that all equipment is complete and serviceable. They are conducted when troops are required to remain topside for routine inspections.

b. Inspections below deck are made to determine the condition of equipment, weapons, and clothing not normally carried topside for routine inspections.

c. Frequent inspections are made of all vehicles to assure their proper functioning when debarked. Arrangements are made with the commanding officer

of the ship for access to holds. These vehicle inspections include:

(1) Inspection of waterproofing.
(2) Check for gas and oil leakages.
(3) Inspection of shoring to see that the vehicles are well secured.
(4) Inspection for deterioration due to dampness and sea water.
(5) Tire inspections.
(6) Testing of storage batteries for charge and water level.

126. EMERGENCY SHIP DRILLS

The commanding officer of the ship conducts certain drills necessary to the safety of the ship and the persons aboard. Smoking is prohibited during all general drills and emergencies. Once the ship is underway, all personnel are required to wear either the life belt or life jacket. The presence and condition of the life belt or jacket is checked at each of the following drills:

a. Fire and Collision. During the fire and collision drills, or in case of actual fire or collision, troops remain in their assigned areas except that they clear passageways and affected areas of the ship. In an actual emergency, the troops may also be used to assist the ship's crew.

b. General Quarters. Except for special details, troops move to, and remain in, troop compartments during general quarters. They keep passageways and ladders clear for personnel engaged in the drill

or emergency. Troop officers join their units in compartments during general quarters.

c. Abandon Ship. As soon as practicable after arriving aboard, the troops are given instruction and practice in abandoning ship (fig. 29). Assembly areas and routes to them are prescribed for all troops. Boats, rafts, and debarkation nets are designated for each boat team. Assembly areas and routes follow the debarkation plan as closely as practicable. The troops assist in launching rafts and are instructed in the methods used. They are instructed to use debarkation nets and lines in abandoning ship instead of jumping over the side. If it becomes necessary to abandon ship by jumping over the side, the troops are instructed to follow these safety precautions to avoid injury—

(1) Helmets are removed.
(2) Cork and kapok life jackets are properly fitted on each man and held in such a way that the force of the fall does not tear off the life jacket or injure the wearer.
(3) Men jump feet first with legs together.
(4) Pneumatic life belts are not inflated until the wearer is in the water.

127. FINAL DEBARKATION PREPARATION

Twenty-four hours before the arrival of transports in the objective area, final preparation for debarkation is begun. This preparation is divided into four phases: issuance and inspection of combat supplies, preloading and spotting of equipment, welfare and morale activities, and final conferences.

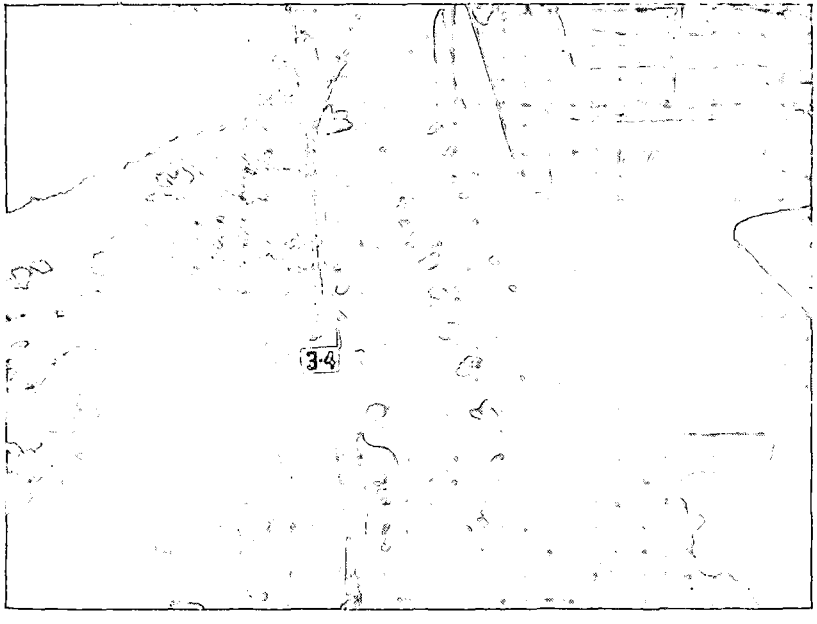


Figure 29. Abandon ship drill.

a. Issuance and Inspection of Combat Supplies. During this phase—

(1) Ammunition, pyrotechnics, water, rations, and special equipment are issued to the embarkation team.
(2) Flame throwers are fueled.
(3) Communication equipment is inspected for serviceability and waterproofing.
(4) Vehicles and heavy equipment are inspected for serviceability, waterproofing, and readiness for debarkation.
(5) Each man is inspected for completeness of clothing, combat equipment, and supplies.

b. Preloading and Spotting of Equipment. To ease debarkation, all equipment and supplies that can be preloaded are placed in their respective landing craft. Other heavy equipment is spotted at the proper loading station. All equipment is secured to prevent damage or loss.

c. Welfare and Morale Activities. Religious services are held during this period for those who desire them. If possible, a special meal is fed before debarkation. All preparations are completed in time to let all BLT members get the maximum rest before the actual hour of debarkation.

d. Final Conferences. The BLT commander holds conferences with his staff and unit commanders. At this time, any last minute changes in the situation or operation order are published.

CHAPTER 7

DEBARKATION

Section I. ORGANIZATION FOR DEBARKATION

128. DEBARKATION IS A CRITICAL PHASE OF THE OPERATION

Debarkation from an assault transport is a critical phase of an amphibious operation. The small boat loading operation exposes the ship to enemy action during that period when the transport is most vulnerable to submarine or air attacks. Therefore, it is essential that debarkation be as rapid as possible.

129. EFFICIENT ORGANIZATION SPEEDS DEBARKATION

Organization for debarkation from a transport includes troop organization and ship organization. The BLT tactical units and the transport operating units are organized to ease the unloading and landing of troops and their equipment.

130. TROOP ORGANIZATION

a. The basic BLT organization is the *boat team*, which is a tactical unit consisting of all personnel and combat equipment assigned to a single boat for the movement from ship to shore. Normally, a boat team is organized as follows:

(1) Boat team commander.

(2) Assistant boat team commander.
(3) Loaders.
(4) Squads and details.

b. The senior troop officer or noncommissioned officer commands the boat team. His duties before and during debarkation include—

(1) Reconnoitering routes from the assigned troop compartments (assembly areas) to his team's debarkation station.
(2) Assembling the boat team in its assigned area before debarkation.
(3) Inspecting each man for proper uniform and equipment while in the assembly area.
(4) Stationing a guide near the debarkation station.
(5) Forming the boat team at the debarkation station.
(6) Supervising the debarkation of his men and the lowering of their equipment.

c. The next senior commissioned or noncommissioned officer of the boat team is the assistant boat team commander.

d. Eight men are designated by the boat team commander to load equipment into the boat. *Four men lower* equipment from the debarkation station to *four men stationed* in the boat who arrange it in sequence for debarkation.

e. The tactical integrity of small units, like rifle squads, is maintained whenever possible. Men who are not members of a squad, like observers and radio operators, may be attached to one of the squads.

f. During debarkation a *troop debarkation officer* controls the movement of all the boat teams. The

troop debarkation officer is usually a designated BLT staff officer who is stationed on the ship's bridge and works with the ship's debarkation officer. His primary job is to have the boat teams at their debarkation stations at the correct time. He is responsible to the BLT commander for the execution of his duties. He is provided with a debarkation schedule and a boat assignment table.

131. SHIP ORGANIZATION

a. The organization of ship personnel and boats for debarkation parallels the BLT organization.

b. The *boat crew* is the basic landing unit of an assault transport. The major part of an assault BLT is landed by the boat crew of the LCVP, the standard type landing craft. Large vehicles and heavy equipment, like bulldozers, are landed by an LCM boat crew. A coxswain normally commands the boat crew, which generally includes a mechanic and a signalman.

c. The *boat group* is the basic task organization of landing craft. It includes all boats assigned or attached to a single transport for landing the BLT. Generally, an assault BLT requires about 40 LCVP's and from 6 to 8 LCM's to land its boat teams in one trip. A typical assault transport (APA) normally carries about 25 to 30 LCVP's and 1 to 3 LCM's. Additional boats from other transports in the same transport division may be attached to the boat group. A naval officer commands the boat group.

d. The boat group is formed for landing in waves of boats. There may be from 4 to 7 waves in the boat group transporting the BLT's assault elements.

Each wave is commanded by a naval officer. Wave commanders and their assistants control the movement of their assigned waves from the rendezvous area to the beach.

e. A naval officer trained in debarkation procedure is designated as the *transport debarkation officer.* He controls the movement of boats during debarkation. He is a ship's officer normally stationed on the bridge, and is responsible to the commanding officer of the ship for the debarkation and unloading. He is furnished a debarkation schedule showing the type of boat scheduled to load at each debarkation station. His job is to have the proper type of boat at the designated debarkation station ready for loading at the time shown in the debarkation schedule.

132. DEBARKATION STATIONS

a. A *debarkation station* is a location at the rail of a transport (fig. 30) where troops and matériel load into boats for the ship-to-shore movement. Troops, other than those rail-loaded and lowered in boats, debark by descending nets (fig. 31) down the sides of the ship at debarkation stations. Each assault transport (APA) has at least four debarkation stations on each side of the ship that are designated by the following numbers and colors:

	Starboard	*Port*	*Color*
Debarkation Station_____	No. 1	No. 2	Red
Debarkation Station_____	No. 3	No. 4	White
Debarkation Station_____	No. 5	No. 6	Blue
Debarkation Station_____	No. 7	No. 8	Yellow
Debarkation Station_____	No. 9	No. 10	Green

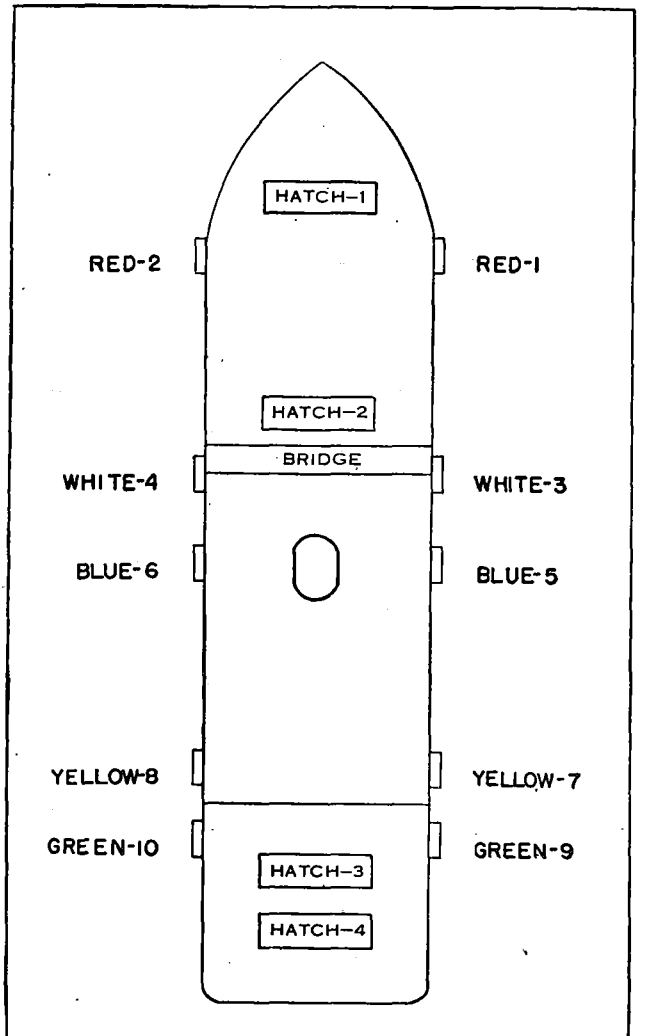


Figure 30. Diagram showing debarkation stations.

b. A *debarkation station officer* is a ship's officer who is stationed at each debarkation station. He is responsible for the loading of boats and for keeping the ship debarkation officer informed of the progress of debarkation at his station.

c. During debarkation, a ship's officer stationed at the *after signal station* (near the stern of the ship) assists in controlling the landing craft. He controls the movement of empty boats from the boat assembly areas to debarkation stations for loading.

133. BOAT ASSEMBLY AREA

The areas for the assembly of empty boats are designated about 250 yards from the transport or within observation so that the boats may be signaled alongside for loading. LCM areas are located abeam to starboard and to port. LCVP areas are off the starboard and port quarters. The location of assembly areas for debarkation from one or both sides of a transport are shown in figures 32 and 33.

Section II. PREPARATION FOR DEBARKATION

134. READINESS CONDITION

Upon approaching the transport area, the ship debarkation officer announces a condition of readiness for debarkation. All debarkation stations are manned. Boat teams assemble in troop compartments to permit the crew to prepare the ship for debarkation. Upon arrival at a designated point in the transport area, the ship stops to unload. The transport lowers all boats except those to be rail-loaded. The lowered empty boats go to their

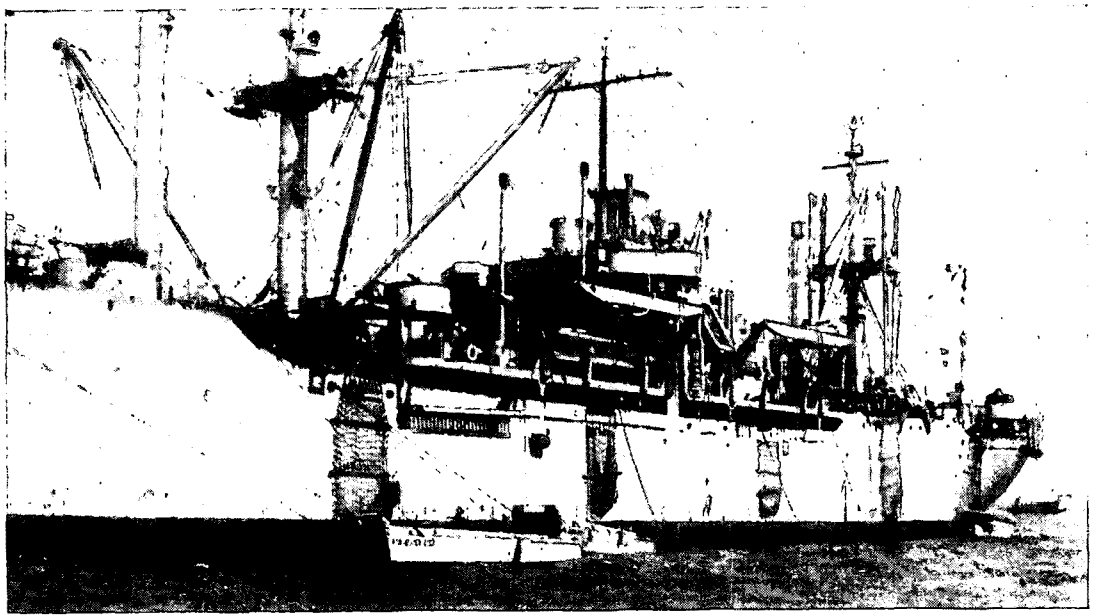


Figure 31. Debarkation stations on the port side of an APA.

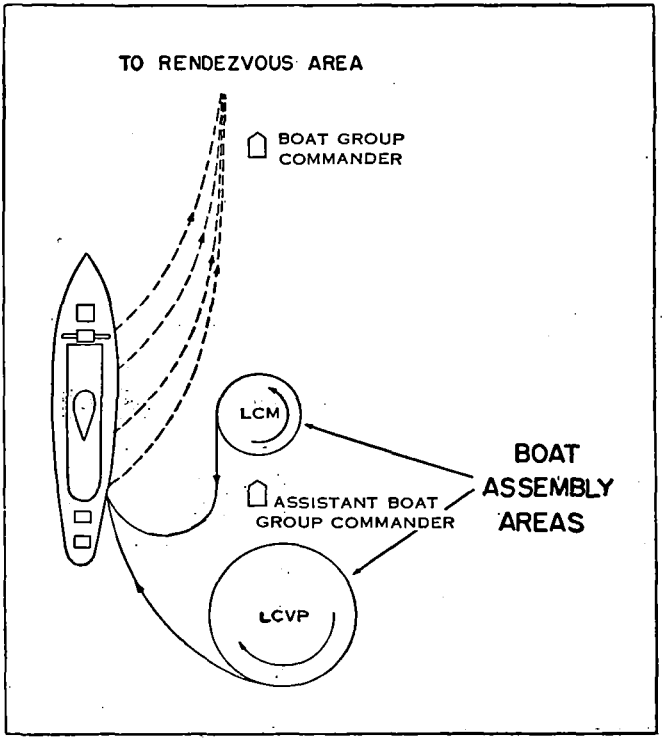


Figure 32. The relative locations of boat assembly areas.

assigned boat assembly areas. The ship debarkation officer then calls boats alongside for loading in the sequence shown in the debarkation schedule.

135. PROCEDURE IN TROOP COMPARTMENTS

a. Boat team commanders of the teams scheduled to load in the first trip of boats assemble their teams

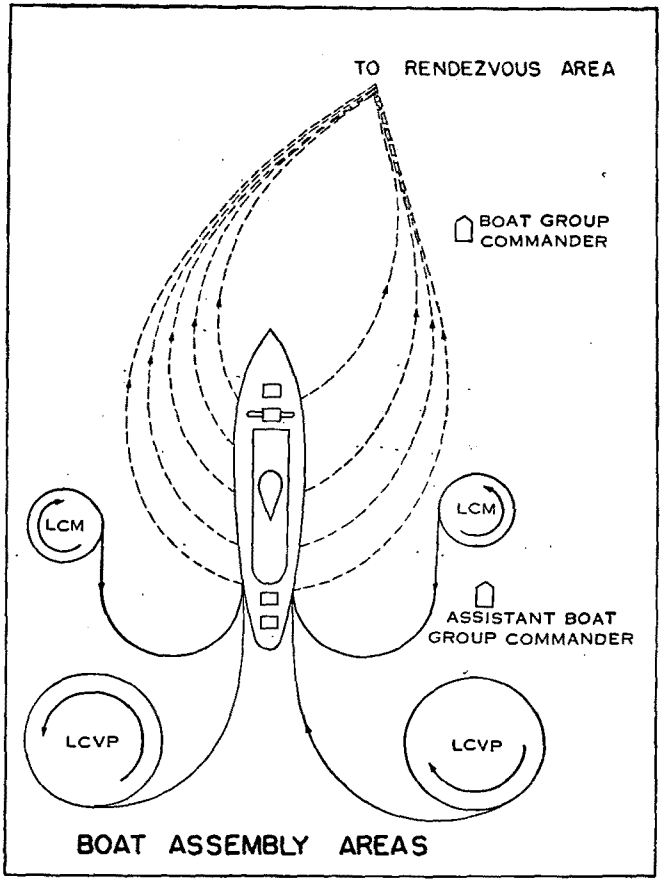


Figure 33. Boat assembly areas for debarkation from both sides.

and inspect each man. This inspection is to make sure that:

(1) Individual arms and equipment are adjusted for debarkation.
(2) Lifebelts are worn under all equipment.
(3) Gas masks are properly slung.
(4) Rifles are slung as prescribed.
(5) Cartridge belts remain unfastened.
(6) Helmet chin straps are buckled but loosened.
(7) Equipment is adjusted so that it can be dropped immediately in an emergency.
(8) The boat team sign is carried by the designated man.
(9) Each man knows his assigned position in the boat.
(10) Lashing lines are on all equipment to be lowered over the sides.

b. For detailed instructions on the slinging, tying, and adjustment of individual equipment and light weapons, see appendixes V and VI.

c. Boat teams that load in the second trip of boats remain in their compartments until they are called to their debarkation stations.

136. MOVEMENT TO DEBARKATION STATIONS

a. After the boat team commanders complete their inspections, the boat teams await the word to move to their assigned debarkation stations. The troop debarkation officer announces the time to begin the movement over the public address system. When the announcement is made, all boat teams move out in proper order in single file over designated routes

to their debarkation stations. Each boat team commander leads his team, and his assistant brings up the rear to prevent straggling. The leading team going to a single debarkation station halts when its head reaches the hatch nearest its station. Following boat teams assigned to the same station halt in column in rear of the leading team. As the leading boat team moves to the station and debarks, the next team in column moves forward until the team commander reaches the hatch, where he waits until called for debarkation.

b. Sometimes the boat teams may be called individually over the public address system to report to their debarkation stations. In this case, all boat teams remain in readiness in their compartments until called. When called, they follow the same procedure as described above for the leading boat teams.

c. Guides stationed at each debarkation station may be used to notify the next boat team when it should report to its station for loading.

137. PROCEDURE AT DEBARKATION STATIONS

Boat team commanders halt their men away from the rail at their assigned debarkation stations. Men with crew-served weapons and other equipment that cannot be carried down the nets prepare their equipment for lowering over the side. The boat team commander supervises the preparation of equipment for lowering and designates the *first four* men in column to assist in loading. Four men from this boat team should already be in the boat; *two men* hold the debarkation net in the boat and *two men* receive the equipment that is lowered.

138. PREPARATION OF VEHICLES

The unloading of vehicles in the sequence shown in the vehicle debarkation schedule is the BLO's responsibility. Before arrival in the transport area, troop commanders make sure that the combat loads are placed correctly in all vehicles and that water trailers and water cans are filled. The drivers check batteries, tires, gas, oil level, lights, springs, and ignition keys. They also test the motors of those vehicles that are carried as deck loads. When practicable, loading slings may be attached to vehicles that will be unloaded first. When a condition of readiness for debarkation is announced, all drivers report to their vehicles to make a final inspection while awaiting debarkation.

Section III. DEBARKATION

139. RESPONSIBILITIES FOR DEBARKATION

a. Limited by the loading characteristics of the transport, debarkation is conducted either by loading troops and equipment over debarkation nets on the sides of the ship or by rail-loading. In the rail-loading, boats are lowered by davits to the level of the rail and loaded before being lowered to the water. The BLT commander is responsible for loading troops and matériel. The commanding officer of the ship is responsible for lowering and assembling boats, bringing the boats alongside the debarkation stations at the proper time, and clearing boats from the sides of the ship after the loading is completed.

b. When enough boats are available, the first assault waves are usually debarked in the first trip of

boats. The second trip of boats is normally not formed into waves. They are loaded and move to the beach individually, shuttling until the transport is completely unloaded.

140. DEBARKING TROOPS FROM TRANSPORTS

a. A boat team commander begins debarkation when notified by the debarkation station officer that his boat is alongside ready for loading. Using the usual procedure, he orders the assistant boat team commander and four men to descend the net while members of the boat's crew hold the net taut in the boat. The boat's crew holds the net away from the ship until the first two men into the boat relieve them. The other two men prepare to receive lowered equipment. While equipment is being lowered at the sides of the net, the boat team commander orders men over the side in ranks of three or four men (fig. 34) depending upon the width of the net. The nets are always kept filled to capacity. In rough seas or when visibility is poor, it may be advisable to lower equipment into the boat before debarking the boat team. For the technique of ascending and descending the net, see appendix VII.

b. The assistant boat team commander in the boat supervises the boat discipline and stowage of equipment. He sees that all men go promptly to their assigned places, unsling their rifles, hold them at an angle away from the ship, face the bow of the boat, and kneel down. Troops take positions in columns facing the ramp, with the first man in each column near the ramp. All men unfasten their helmet chin straps after taking their positions in the boat.

Figure 34. Descending debarkation net.

c. The boat team commander makes a final check to see that all troops and equipment are loaded. He sees that the lowering lines are drawn up and properly stowed for use by succeeding boat teams. He descends the net last, and upon arrival in the boat informs the coxswain that all men and equipment

are loaded. He sees that all troops and equipment are properly stowed, that the boat team sign is prominently displayed, and finally takes his position in the bow of the boat. The assistant boat team commander takes position in the stern of the boat.

141. DEBARKING LIGHT EQUIPMENT FROM TRANSPORT

Light equipment, like machine guns, mortars, and ammunition, is lowered as quickly as possible by hand lines, nets, or equipment bags. Upon signal from the boat team commander, designated men lower and guide the equipment into the boat either forward or aft of the debarkation net. When equipment is lowered into the boat before personnel is debarked, it is usually lowered over the center of the net to prevent loss of equipment in case of accident. The men who receive the equipment in the boat untie lowering lines when the equipment is firmly on the bottom of the boat. Then they arrange the equipment in the prescribed places.

142. LOADING VEHICLES AND HEAVY EQUIPMENT

During debarkation, the drivers remain with their vehicles in the hold of the ship until the vehicle is moved under the square of the hatch for hoisting. The drivers then debark into the landing craft where their vehicles will be loaded. Vehicle crews, less drivers, embark in the landing craft before the vehicles are loaded to assure proper loading. When heavy equipment is being loaded, the only troops in the craft during the loading are those who guide the

equipment and who remove loading slings. Special precautions are taken against accident when loading heavy equipment in rough seas or reduced visibility.

143. RAIL-LOADING

a. Rail-loading is a loading procedure during which boats are lowered from davits to the level of the ship's rail or deck, where they are loaded with troops and equipment before being put in the water. Assault transports normally carry several LCVP's in multiple-bank davits capable of lowering loaded boats. These reduce the time required for debarkation. To lessen seasickness and fatigue from exposure, rail-loaded troops are usually debarked after those loaded by nets. Normally these boats are reserved for assault troops of the first two or three waves, because these troops should land in the best physical condition.

b. Boat teams that are scheduled to rail-load, stow, and secure combat equipment in their assigned boats before arriving in the transport area. During debarkation the boat teams assemble at their designated stations which are generally located inboard of the boat to lessen the danger of men falling overboard. After the boats are lowered to deck level, the boat crews place ladders or gangplanks in position to ease the loading. Upon signal from the boat team commanders, the troops take places in the boats from front to rear, in the desired landing sequence. While the loaded boats are being lowered the troops support themselves on grab lines, which are small ropes attached to the boom of the davit (fig. 35).

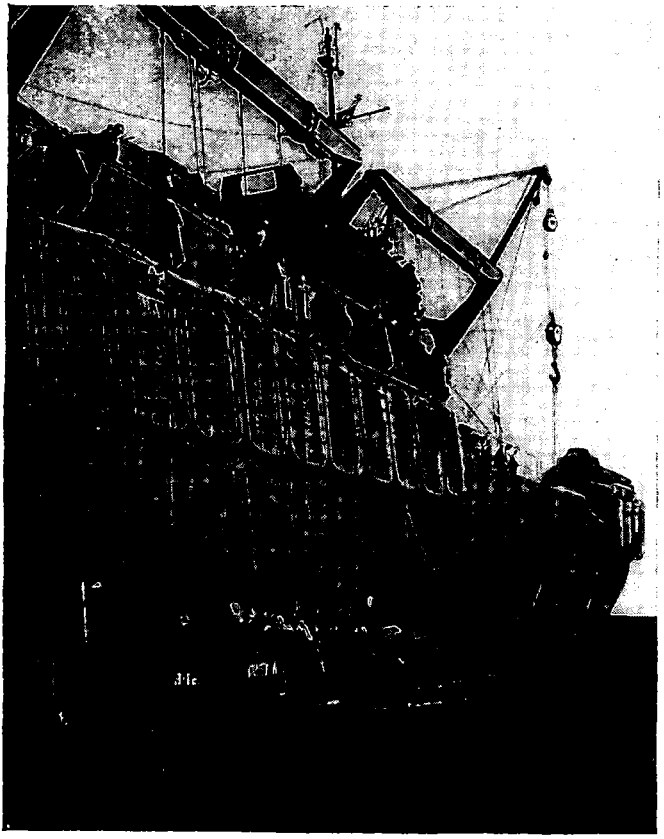


Figure 35. Rail-loaded boat after being lowered from a davit.

144. SUBSEQUENT LOADING

Men and equipment to be loaded in the second trip of boats debark in the order of priority assigned in the debarkation schedule. Boat teams are called to

report to their designated debarkation stations as boats become available. Normally, loaded second-trip boats move to the beach individually, shuttling until the transport is completely unloaded. They may also be formed into waves that are dispatched to the beach on call.

145. DEBARKATION FROM LANDING SHIPS

a. Landing ships like the LST, LSM, LSV, and LSD usually transport amphibious vehicles, armored units, artillery and other units having heavy equipment, and supplies. These landing ships, except the LSM, are also suitable for landing assault infantry in landing vehicles.

b. Such procedures governing debarkation from an assault transport as apply will be used when assault troops and their equipment debark from landing ships.

c. Amphibious tractors (LVT's) may be used to transport assault troops and their equipment to the beach where the approach is restricted by natural obstructions like coral reefs and sand bars, or where the beach is restricted by artificial obstacles. Boat teams using LVT's are normally transported to the objective area (with their tractors) on LST's. Before arriving at the objective area, the boat teams stow and secure combat equipment in the designated LVT's. Also before arriving in the landing ship area, vehicle drivers test their engines and complete mechanical preparations for debarkation. In the landing ship area, a ship debarkation officer announces a condition of readiness for debarkation by sounding the tank deck alarm. Boat team com-

manders check individual and boat team equipment. Drivers and boat teams move to their assigned vehicles when the alarm is sounded. Boat teams load on order of the boat team commanders. When each LVT is loaded, the boat team commanders make a final inspection to see that all men are present in their correct positions, equipment is properly stowed, and the boat team signs are prominently displayed.

d. Before moving forward on the tank deck, the drivers close all LVT ports and hatches. On signal from the ship's officer located in the ramp control station, the drivers move their vehicles ahead in low gear, keeping close to the tractor ahead. The tractors descend the ramp one at a time through the bow of the LST on order of the ship's debarkation officer. The launching is carefully coordinated so that the LVT's emerge from the ship in a sequence enabling them to assemble quickly by waves in the proper formations for movement to the shore. After arriving on the shore, the men debark rapidly.

e. The principles applicable to landing LVT's from LST's apply to other types of landing ships like LSM's and LSD's.

f. The procedure for debarking LVT's from the LST is generally applicable to the LSD, except that debarkation is effected by flooding the LSD well-deck and allowing the water-born LVT's to move out at the stern of the ship. LSD's are generally used to transport tanks that are carried in tank lighters (LCM's or LSU's). The lighters are debarked by flooding the LSD enough to allow the landing craft to move out at the stern of the ship under their own power. Based on the capacity of

the ship, troops transported in the LVT's are assigned berths aboard the LSD for the movement to the objective. Additional personnel may have to sleep in their respective LVT's. At the signal for debarkation, boat team elements form in their berthing compartments, are inspected by their boat team commanders, and move directly to the well-deck. There they descend ladders to the LVT decks, crossing to their assigned landing vehicles.

Section IV. CONTROL

146. CONTROL MEASURES ARE CAREFULLY PREPLANNED

The debarkation of assault troops and their equipment requires detailed coordination between troop leaders, ship, and boat group personnel. The control measures are planned so that they may be used for operation in daylight and darkness or during reduced visibility.

147. BOAT IDENTIFICATION

a. Boat team signs make control easier during the debarkation and while the troops are in landing craft before crossing the line of departure. The BLT commander provides each boat team with a boat sign that shows the designated boat number as given in the boat assignment table. Boats are numbered with two digits. The first digit shows the wave number and the second shows the boat number within the wave. For example, boat 13 is the third boat in column in the first wave, and boat 23 is the third boat in column in the second wave.

b. Boat team signs (fig. 36) are made large enough to be seen for a long distance, yet they must be made light enough for easy handling. The signs are three-sided with black numerals on a white background so that they can be easily read from any direction.

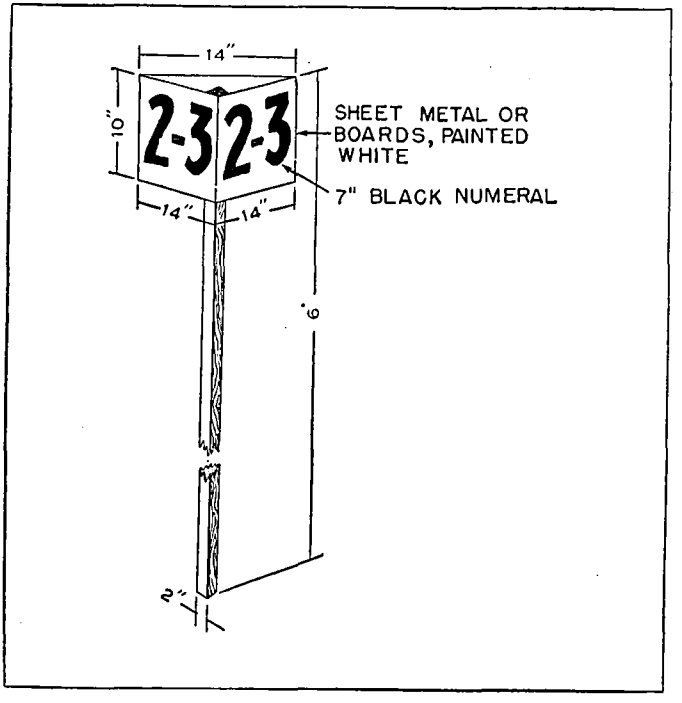


Figure 36. Material and dimensions of a boat team sign.

148. CONTROL DURING DAYLIGHT

a. The troop debarkation officer controls the assembly and movement of boat teams by announcing instructions over the ship's public address system. Guides located at debarkation stations supplement the loudspeaker system.

b. The ship debarkation officer controls the assembly and movement of boats by communication with the boat group commanders, debarkation station officers, and the ship's officer located at the after signal station. During daylight, signalmen at the after signal station use visual signals to direct boats from boat assembly areas to debarkation stations. Debarkation station officers use loudspeakers or megaphones to give oral instructions to coxswains.

149. CONTROL DURING DARKNESS

a. During darkness or reduced visibility the principles governing debarkation are essentially unchanged. Debarkation at night is conducted without lights, except for necessary screened signal lights for boat control.

b. Often to accustom troops to the darkness, the inside of the ship is darkened before boat teams move to their debarkation stations. To ease control, the intervals between troops in column formations are greatly reduced.

c. The lowering and loading of boats at night is slower than in daylight. Signalmen at the after signal station and debarkation stations use various colored lights, corresponding to debarkation station colors, to direct landing craft to the nets.

Section V. COMMUNICATION

150. DEBARKATION COMMUNICATION IS CAREFULLY PLANNED

a. Communication during the debarkation is limited within the BLT to messenger service between the BLT commander and unit commanders. Normally the ship's public address equipment is used to control the assembly of boat teams, the loading of boat teams, and the loading of equipment.

b. The ship's debarkation officer is in direct communication with each debarkation station and the after signal station by sound-powered telephones, with the boat group commander and assistant boat group commander by radio, and with each landing craft by public address equipment and visual signals.

c. The troop debarkation officer controls the movement of boat teams to their debarkation stations by using the ship's public address system.

d. A well organized debarkation plan reduces the amount of communication needed within the BLT, thus releasing the maximum number of BLT communication personnel and communication means for use during the assault.

e. As the assault craft assemble in their rendezvous areas, the BLT radio nets may be opened. Although adding to control, this may result in water-spray damage to the radio equipment. Normally, the BLT radio sets in operation during the debarkation phase are limited to those in the BLT command net and those in contact with the BLT rear echelon afloat.

f. Other nets may be opened in the rendezvous area, depending upon the amount of available communication equipment. Normally, the radio nets operated by landing craft personnel furnish adequate communication with the boat waves and between individual boats to control the small units before they land.

151. RESPONSIBILITY FOR COMMUNICATION

The BLT commander is responsible for communication between elements of the BLT. The BLT communication officer coordinates with the ship's communication officer so that the minimum number of BLT communication personnel, and the minimum amount of BLT equipment are used during this phase.

CHAPTER 8

SHIP-TO-SHORE MOVEMENT

Section I. DEPLOYMENT

152. BOATS DEPLOY FOR ASSAULT

Ship-to-shore movement is the water-borne deployment of landing boats for the approach to the hostile beach. When the approach is opposed by enemy fire or is under air attack, the deployment of the boats is essential to land the assault troops in the proper attack formation at the desired beaches with minimum casualties. Success depends on thorough training, planning, and mutual understanding and cooperation between the BLT and ship personnel.

153. RESPONSIBILITIES

a. The Navy is responsible for conducting the ship-to-shore movement according to the plan of maneuver.

b. The BLT commander's responsibilities are to—

(1) Assist control officers to conduct the movement according to the tactical plan.

(2) Maintain communication with companies, supporting units, and regiment.

(3) Establish the BLT command post.

(4) Land the BLT reserve to best exploit initial success ashore or, in emergency, to assist in the seizure of the BLT beach.

c. During the assembly of boats in the rendezvous area and the movement to the line of departure, the BLT commander and the executive officer, in free boats, may assist the boat group commander. They assist company commanders to control their units, and they see that the entire BLT is ready for the run to the beach.

d. The BLT commander is responsible for moving his troops to the debarkation stations. Once in the assault craft, the movement to the rendezvous area, the line of departure, and the run to the beach are controlled by the transport squadron control officer. Normally the BLT commander's and the executive officer's boats are not assigned to scheduled waves. These boats cross the line of departure when the BLT commander deems it necessary and to enable him to best control his forces. During the run to the beach the BLT commander maintains radio communication with the initial waves to receive reports of their progress ashore.

Section II. MOVEMENT TO RENDEZVOUS AREA

154. RENDEZVOUS AREA

After the boats are completely loaded alongside the transport, they move directly to a rendezvous area designated for the assembly of loaded boats. The rendezvous area is normally located 500 to 1000 yards from a transport in the direction of the line of departure. The area is usually marked by a control vessel (fig. 37).

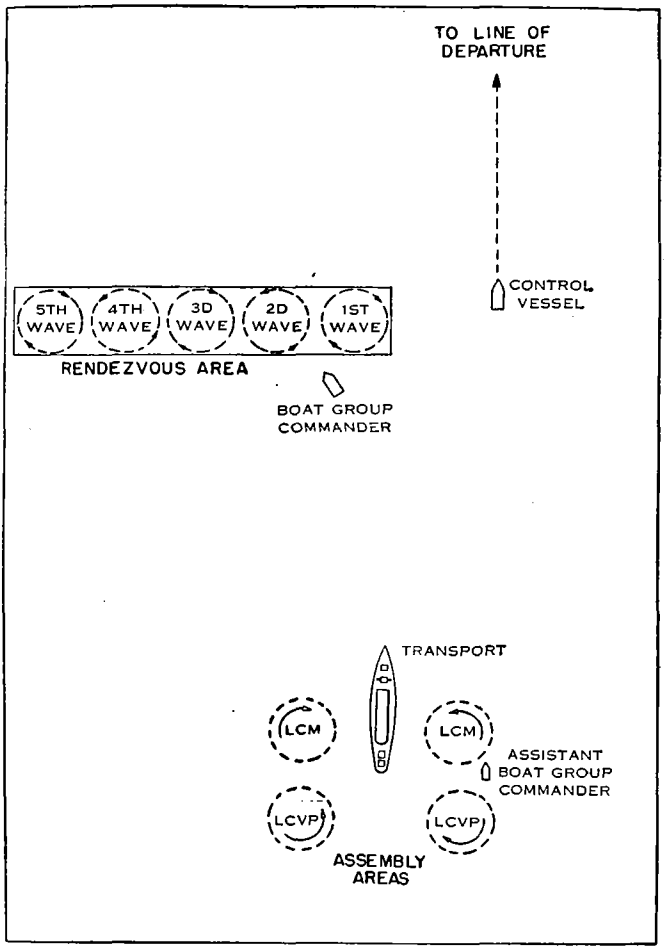


Figure 37. Boat assembly and rendezvous areas.

155. BOAT WAVES

Upon arrival at the rendezvous area, boats assemble into boat waves according to the landing diagram. Boat wave commanders identify boats by their boat team signs. Wave commanders assemble their boats in numerical sequence in wave circles, one circle for each wave. Odd-numbered waves circle slowly in a clockwise direction, while even-numbered waves circle in a counterclockwise direction until the entire boat group is assembled.

156. BOAT TEAMS

During the movement of the boats from the ship to the rendezvous area, and when directed by the boat team commanders, troops sit or stand in their assigned places within the boats. Boat team commanders have the men unsling their rifles and other heavy equipment. Cartridge belts are unfastened to ease the removal of equipment in case a boat is sunk. The boat team sign is prominently displayed in the bow of the boat so that it may be easily identified by the boat wave commander. An air lookout is posted to warn of air attack.

Section III. MOVEMENT TO THE LINE OF DEPARTURE

157. CONTROL OFFICER MOVES WAVES TO THE LINE OF DEPARTURE

a. The control officer (or boat group commander) in the control vessel leads the boats from the rendezvous area to the line of departure. Although this movement is normally made by the entire boat group,

it may be made by waves. In either case, the first wave arrives at the line of departure at the proper time.

b. The line of departure is normally marked by control vessels; used to assist the waves to land on their assigned beaches at the proper time; used to coordinate naval gunfire and air support with the movement of the landing craft; established beyond effective small arms or mortar range, usually about 4,000 yards from the beach; and perpendicular to the general direction of approach (fig. 38).

158. BOAT WAVES

a. Normally the entire boat group moves to the line of departure as a unit in a column of waves. Each wave may be in a column of open "V" formations, maintaining about 40 yards between boats to avoid presenting a concentrated target. During darkness, rain, smoke, or other conditions of reduced visibility, boat waves use the closed column or closed "V" formation with the distance between individual boats reduced to the limit of visibility. The column formation eases the control and deployment of boats upon approach to the line of departure.

b. If the entire boat group moves to the line of departure at the same time, all waves move up and circle in numerical sequence immediately seaward of the line. Wave commanders lead their respective waves across the line of departure upon signal from the control officer. If the movement from the rendezvous area is made by individual waves, succeeding waves are led from the rendezvous area by respective wave commanders so as to arrive at the line of de-

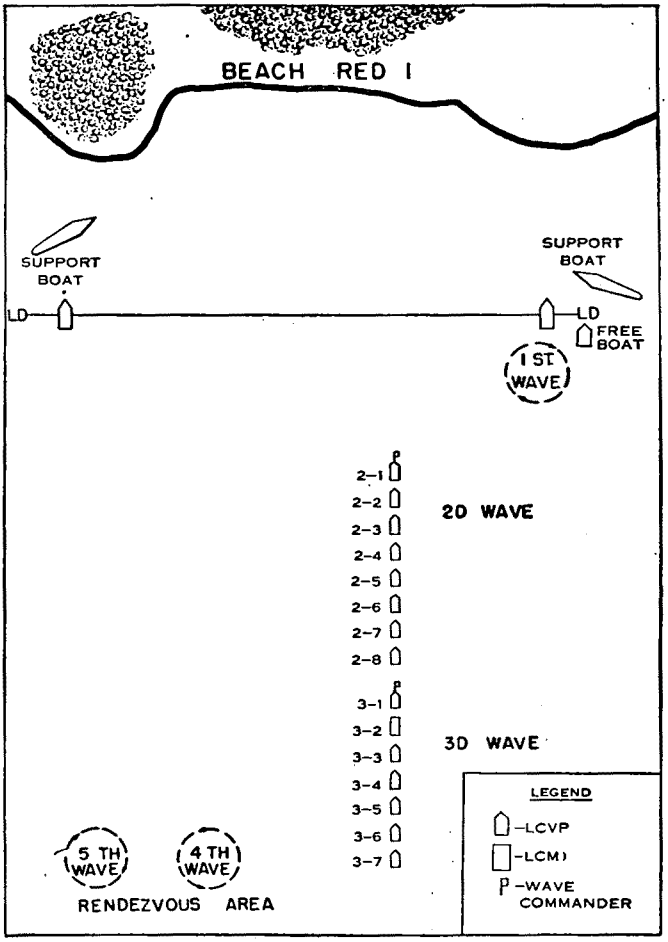


Figure 38. Boat movement from rendezvous area to the line of departure.

parture at the prescribed time. Normally each wave deploys gradually from a column formation into a line abreast or open "V" formation before crossing the line of departure. Each wave commander deploys his wave in the prescribed landing formation for the run to the beach.

Section IV. MOVEMENT TO THE BEACH

159. CONTROL OFFICER MOVES WAVES TO THE BEACH

a. A control officer located in a control vessel at the line of departure controls the movement of boat waves from the line of departure. He signals wave commanders to lead their waves across the line of departure so as to arrive at the assigned beach at the time prescribed in the landing diagram.

b. Wave commanders are responsible for the control of their boats in the assigned boat lane, which includes the sea area between the line of departure and the BLT beach. The flanks of the boat lane are marked by control vessels located on the line of departure.

160. BOAT WAVES

On signal from the control officer, wave commanders lead their boats across the line of departure in the proper formation. A line of boats abreast is the formation usually used by the assault waves during the run to the beach (fig. 39). This formation lands all wave elements at approximately the same time, avoids enfilade fire from the beach until just before landing, and gives effective control. The

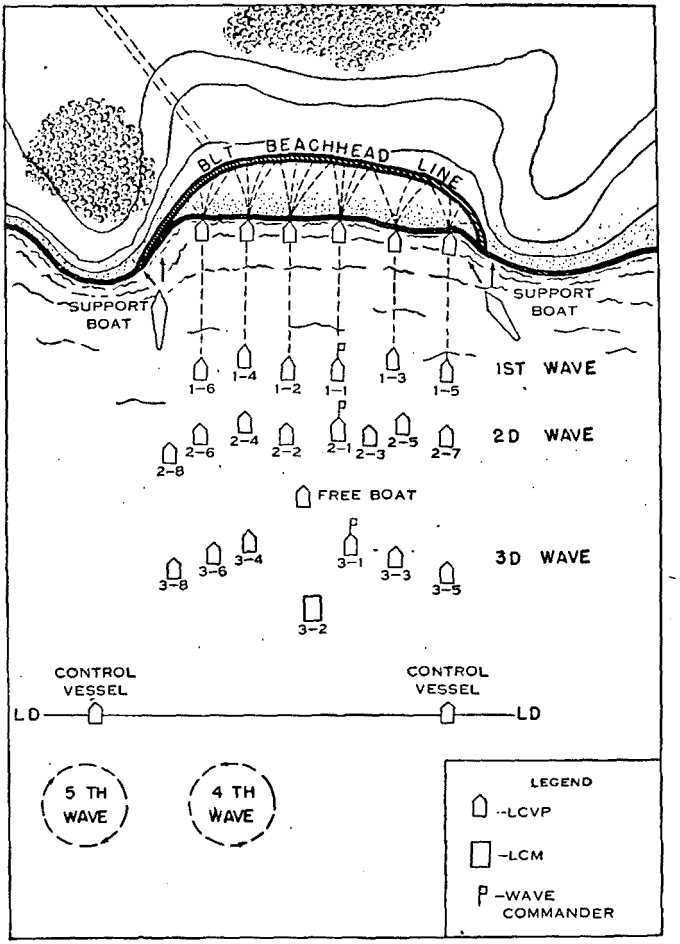


Figure 39. Boat movement from the line of departure to the beach.

line of boats abreast permits full deployment of the troops without congestion on the beach. Boat speeds are maintained at a uniform, predetermined rate so as to make sure that all boats in the wave land at the same time. During the last 1,000 yards the boats move at their maximum rate to minimize the effect of enemy fires.

161. BOAT TEAMS

Upon crossing the line of departure the boat team commanders direct their troops to fix bayonets, get into the kneeling position, and prepare equipment for rapid debarkation. During the run to the beach, the men in each boat keep down as low as possible for protection from enemy fires. If necessary, the boat team commanders remain standing to keep themselves oriented. They observe the terrain, objectives ashore, and enemy beach installations. When the boats are about 100 yards offshore the coxswains notify the boat team commanders, who command STAND BY, at which time all cartridge belts and chin straps are fastened, and the men brace themselves for the jolt when the boat hits the beach. If inflated lifebelts are worn, or during night landings, the cartridge belt is not fastened until the beach is reached. Upon debarking, each man drops his life belt on the beach.

Section V. ARRIVAL AT THE BEACH

162. BOAT WAVE

The distance between boats in line upon beaching depends upon the situation. Normally, the distance

is about 75 yards. The minimum distance apart is 50 yards and the maximum distance is 150 yards. As soon as a boat grounds firmly on the shore, the coxswain lowers the ramp. Upon discharge of the boat team he raises the ramp, retracts from the beach, and clears to a designated flank of the boat lane. Incoming boats have the right of way.

163. BOAT TEAM

a. When the boat is beached and the ramp goes down, the boat team commander leads his men in the dash to the first covered position inland from the beach (fig. 40). The men stay crouched below the gunwales of the landing craft until ready to move out. They debark by stepping off the forward corners of the ramp to avoid being caught under the ramp in case the boat is suddenly moved forward by the surf. If the ramp cannot be lowered, the men immediately debark over the sides of the boat.

b. The assistant boat team commander supervises the rapid landing of the boat team and its equipment, and is the last man to debark. The boat team deploys across the beach as it emerges from the boat. Men move rapidly inland and do not remain on or near the beach. If the boats are not under fire upon beaching, men may carry extra ammunition, water cans, or other supplies, which they drop on the beach as they run to the first covered position.

c. At night, in heavy surf or other difficult conditions, men do not remove their life belts until they reach the first covered position. In daylight, when a safe beaching is assured, life belts may be removed as soon as the boat reaches shallow water. The boat

Figure 40. Boat teams deploying on beach.

team sign is dropped on the beach just above the high water mark so that it can be recovered by the shore party.

164. UNLOADING HEAVY EQUIPMENT AND SUPPLIES

a. After the landing of scheduled waves, continued control of the ship-to-shore movement is vital to assure the timely landing of reserves, equipment, and supplies, and to prevent avoidable congestion on the beaches and in adjacent waters. On-call waves or individual boats are called up and dispatched by the control officer on request of the BLT commander. Men, of the naval beach platoon of the battalion shore party, guide and control boats upon their arrival at the beach. When the need for a line of departure has passed, control vessels leave the line of departure and move closer inshore to control the traffic on the water.

b. The general unloading phase begins after the assault waves beach, and after the enemy beachhead positions have been neutralized enough to permit extensive unloading operations on the beach. Under favorable beach conditions, unloading is normally done by landing craft. All vehicles in the assault are waterproofed to avoid drowning in front of a ramp. At least one suitable recovery vehicle, like a dozer, is unloaded early to remove obstacles or stalled vehicles from the beach.

c. The unloading of loose cargo in considerable tonnage is avoided whenever possible. Supplies are best carried stowed in trucks to secure the maximum mobility in unloading.

Section VI. AMPHIBIOUS VEHICLES

165. TRANSFER OPERATIONS

a. For procedures governing the ship-to-shore movement of amphibious vehicles, see FM 17–34.

b. When reefs or other obstacles exist in the approaches, LVT's or DUKW's may be used to cross these obstacles. As a BLT landing in assault will not normally make a transfer from boats to LVT's, except when a reserve BLT lands on a near beach, this operation will be covered only briefly. For any specific operation, full details will be given in the orders of higher commanders (fig. 41).

c. One method that may be used for the offshore transfer of troops and equipment from LCVP's to LVT's follows:

(1) Empty LVT's assemble in the vicinity of the transfer line which is located beyond effective range of enemy direct fire weapons.

(2) A loaded LCVP approaches an empty LVT designated by the control officer at the transfer line.

(3) The LCVP and the LVT execute a column movement on arrival at the control boat and proceed abreast along the transfer line until both craft are securely lashed together. The LVT driver disengages his gears and allows the LCVP coxswain to maneuver both craft as necessary. Any slack in the lashing allows movement between the boats, and it hampers the transfer of troops or supplies.

(4) The first two men to debark from the LCVP assist the rest of the boat team by extending

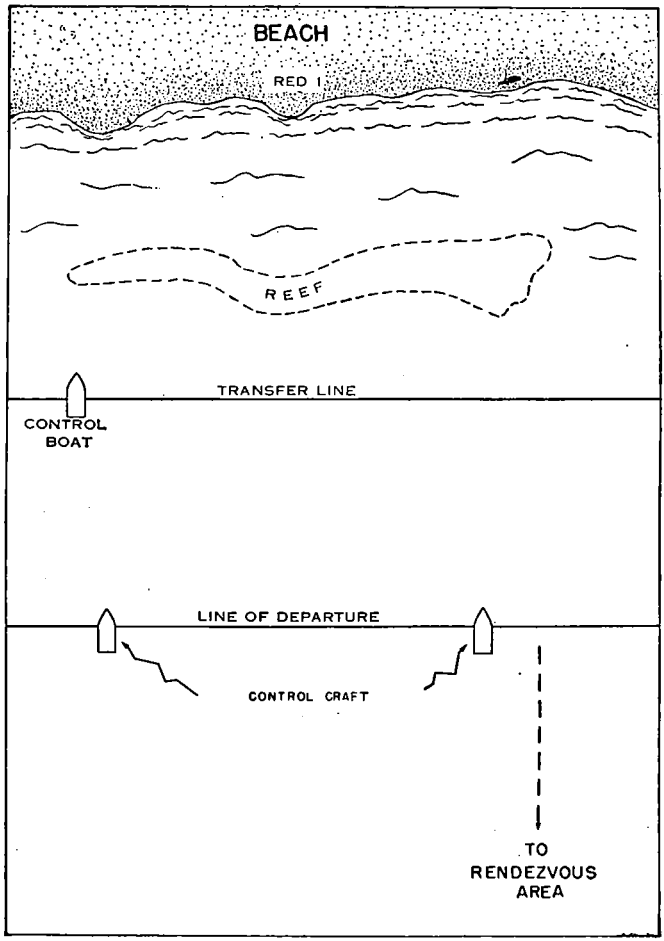


Figure 41. Transfer operations.

a steadying hand to the men as they debark. Men with heavy equipment pass the equipment to the first two men, who hand it to men who have already made the transfer.

(5) In making the transfer, the men place both feet firmly on the gunwales of the LCVP before stepping across to the LVT. This prevents falling backwards into the LCVP, or pitching forward into the LVT.

(6) Men who have made the transfer move promptly to the far side of the LVT to prevent blocking the transfer points.

(7) The LVT unit commander directs the movement of the LVT from the transfer line to the shore.

Section VII. COMMUNICATION

166. COMMUNICATION DURING SHIP - TO - SHORE MOVEMENT

a. During the ship-to-shore movement, the BLT commander continues to communicate with the floating regimental command post, units of the BLT, and the floating rear echelon of the BLT. Organic landing craft radios are the principal means of communication. The BLT messenger craft may also be provided as an auxiliary means of communication during the ship-to-shore movement.

b. At the direction of the BLT commander, direct communication with air support and with naval gunfire support ships may be maintained during the ship-to-shore movement by air and naval gunfire liaison personnel.

167. COMMUNICATION RESPONSIBILITY

The BLT commander is responsible for communication within the BLT during the ship-to-shore movement. The BLT communication officer coordinates the use of available landing craft radio equipment and operators and radio channels. He also coordinates radio nets with air support and naval gunfire liaison personnel. Organic BLT communication equipment is used as little as possible to prevent damage from salt water.

CHAPTER 9

CONDUCT OF THE ASSAULT

Section I. MISSION AND TACTICS

168. BLT MISSION

a. The BLT mission often requires a rapid advance to a prescribed regimental beachhead line which is located far enough inland to prevent enemy short-range artillery fire from being placed on the beach. An intermediate pause for reorganization or coordination is usually made on a prescribed battalion beachhead line, which is located far enough inland to prevent direct machine-gun fire and ground observed high-angle fire from being placed on the beach.

b. The mission demands aggressive effort to overcome such inherent disadvantages as:

(1) Lack of personnel reconnaissance.
(2) Initial difficulty of control.
(3) Decentralization of command.
(4) Lack of normal supporting weapons.
(5) Initial dependence upon radio for communication.

169. TACTICAL CONSIDERATIONS

a. The general principles of offensive land combat apply in an amphibious assault. However, the assault requires a specialized application of these principles because of its inherent disadvantages.

b. The initial success of the assault depends upon the boat teams' capacity for independent and aggressive action. The assault is conducted by boat teams to seize critical terrain features like sand dunes, cliffs, and parts of the front edges of woods and towns that command the beach and boat lanes. The initial wave boat teams seize these terrain features to reduce the aimed small-arms fire on the beach and boat lanes. For this reason, enemy installations located on or near the beach are not bypassed but are destroyed.

c. Platoons and companies progressively reorganize as soon as possible after landing to end the phase of independent small unit action. The BLT's reorganization is usually completed after capture of the battalion beachhead line (fig. 42).

d. After the initial reorganization and during the continuation of the assault, commanders progressively improve their control. The attack is vigorously pressed inland to seize commanding ground and to provide room for maneuver. Weak spots in the enemy position caused by naval gunfire, air bombing, or faulty enemy organization of the beach defense are rapidly exploited. The momentum of the assault is maintained by rapid, decisive, and aggressive action.

e. Upon capture of the regimental beachhead line, it is organized according to the regimental plan of operations. The beachhead may be temporarily organized to provide tactical advantages for subsequent rapid advance inland, or the ground may be fully organized for defense.

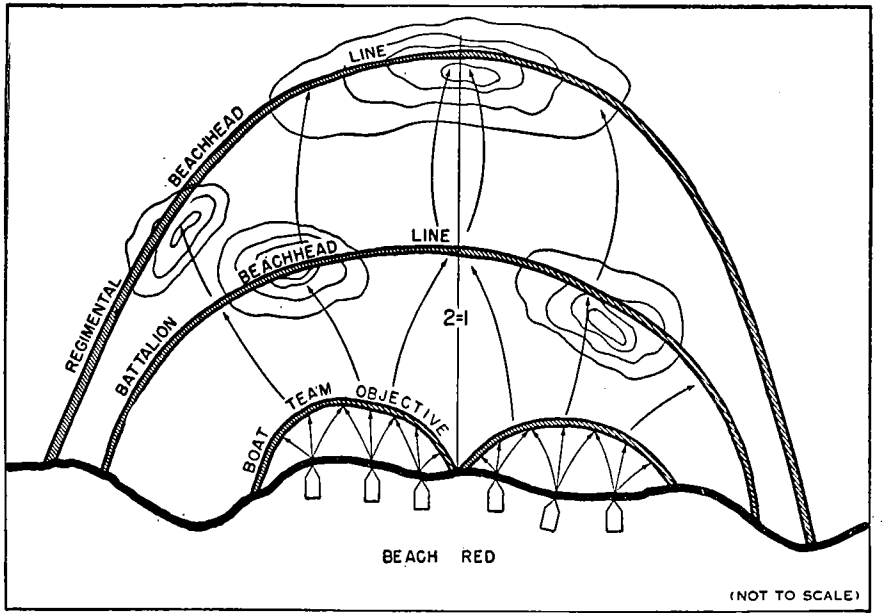


Figure 42. Diagram showing regimental and battalion beachhead lines.

Section II. THE LANDING AND REORGANIZATION

170. ASSAULT RIFLE COMPANY'S ACTIONS

a. The assault rifle company normally lands in two waves. The first (or assault) wave usually consists of two rifle platoons. Each platoon is generally divided into two boat teams, and it may be reinforced for the beach assault by the attachment of light machine guns, rocket launchers, recoilless rifles, flame throwers, and bangalore torpedoes and other prepared demolitions. The second (or support) wave usually consists of the support rifle platoon, 60-mm mortar section, 57-mm rifle section, an attached machine gun section from the heavy weapons company, and company headquarters. It may also include observers for mortars and artillery fires and naval gunfire.

b. During the beach assault, boat teams clear the enemy from a designated section of the beach, or they reduce specific, previously located hostile emplacements on or near the beach. Prompt follow-up of naval and air preliminary bombardment often allows the boat teams to seize objectives with a minimum of casualties; a delay allows the enemy to reoccupy defensive positions and may require a later attack of long duration. Upon landing, boat team leaders organize the assault by reorienting the squad leaders about the objective, designating positions for supporting weapons, and directing the movement of rifle squads and supporting weapons to close with and destroy the enemy. All enemy who can materially interfere with the landing are destroyed. If the boat team is assigned an inland objective, it

destroys any enemy in the immediate vicinity of the landing point before moving inland. The momentum of the assault is maintained by rapid and aggressive action. Delays for decisions, reorganization, and assembling supporting weapons are kept to a minimum.

c. Boat teams faced with strongly fortified beach positions like pillboxes, bunkers, and casemates, use special assault equipment and technique to isolate and reduce these positions. For principles governing the organization and use of the assault team, see FM 31–50.

171. RIFLE PLATOON LEADER'S ACTIONS

a. The rifle platoon reorganizes as soon after landing as possible. When practicable, the platoon leaders regain control of their platoons immediately upon landing. The platoon leader's primary concern is to end the phase of independent boat team action so that he can use the principle of mass by concentrating fire power and maneuvering his squads against the company objectives. After control is gained, one rifle squad is generally designated to act as support.

b. Based on a quick estimate of the situation, the platoon leader decides either to continue the attack as previously planned, or to change the plan of attack to meet an unforeseen situation. In making his decision, the platoon leader holds to the principles of destroying any enemy located near the beach who can materially affect the landing; and second, of advancing rapidly inland to deepen the beachhead.

c. As a general rule, any unit that is successfully

advancing is not diverted or otherwise used except in emergency. When the entire platoon is unable to advance against strong enemy positions, the platoon leader requests assistance from the company commander. Information as to decisions made and actions taken by the platoon leader are reported to the company commander.

172. RIFLE COMPANY COMMANDER'S ACTIONS

a. The assault company commander is primarily concerned with regaining control of his company and making a coordinated attack to seize the company objective or his part of the battalion beachhead line. By sending his executive officer (with radio and messengers) to the beach in the first wave, he makes it easier to regain control. The executive officer coordinates the actions of the two assault platoons and determines their location and situation. He reports the situation to the company commander, who usually lands in the second wave with the platoon leader of the support platoon and an artillery forward observer team. (A BLT naval gunfire spotter may land in the same wave.)

b. Upon landing, the company commander makes a quick estimate of the situation to determine how he can best use his support platoon and the supporting weapons under his control to seize the company objective. He may use the support platoon to reduce enemy groups that the assault rifle platoons have not destroyed. Normally, he has it follow the point of maximum penetration made by the assault platoons, and uses it to exploit success and continue the attack. If the assault platoons progress rapidly,

or if a flank is exposed, he uses the support platoon to protect the company's flanks (par. 36).

c. In continuing the attack, the company commander closely coordinates the action of his assault platoons and provides them with all available fire support including naval gunfire and air.

173. HEAVY WEAPONS COMPANY'S ACTIONS

a. The heavy weapons company usually lands after the assault rifle companies and before the reserve rifle company. *Sections of the machine gun platoon* may be attached to and land with the assault rifle companies to reinforce their machine gun fires. Upon landing, light machine guns are hand carried to selected position areas. Machine gun section leaders control close support fires against crew-served weapons and organized defense areas opposing the advance. Machine gun sections may also be landed on the flanks of the battalion beach to provide flank protective fires.

b. The *75-mm rifle sections* may be attached to assault rifle companies for the beach assault, or may be retained under centralized control. Whenever practicable, the platoon is used in general support for ease of control and ammunition supply. Upon landing, each section hand carries one 75-mm rifle and necessary ammunition to previously selected position areas, either in the vicinity of the forward rifle elements or on the flank of the supported companies. Fires against crew-served weapons opposing the advance of the assault rifle companies are of primary importance throughout the attack. Displacement is made by section echelon, and the weapons are hand

carried until the weapons carriers are brought ashore.

c. The *81-mm mortar platoon* normally lands under centralized control in general support of the assault rifle companies. Forward observer parties usually land with the assault rifle companies. Reconnaissance for positions is made by an advance reconnaissance party before the arrival of the mortar platoon at the beach. Upon landing, mortar squads hand carry their weapons and ammunition to previously selected position areas. As soon after landing as possible, the 81-mm mortar platoon, under control of the platoon leader, fires in close support of the assault rifle companies. The platoon displaces by section echelon, and the weapons are hand carried until the weapons carriers are landed.

174. HEADQUARTERS COMPANY'S ACTIONS

a. Battalion headquarters company personnel normally land with the reserve rifle company and heavy weapons company.

b. Elements of the *pioneer and ammunition platoon* may land with the first wave to perform demolition and pioneer tasks on the beach. The pioneer and ammunition squads usually carry extra ammunition for the heavy weapons company. The platoon leader establishes a battalion ammunition distributing point near the beach.

c. Elements of the *battalion intelligence squad* may land in the first or the second wave to initiate early reconnaissance and to establish observation posts.

d. The *communication platoon* elements usually land with the BLT commander and executive officer.

The remainder of the platoon may land with the heavy weapons company and reserve rifle company.

e. Staff officers and enlisted men of *battalion headquarters and battalion headquarters section* are usually organized into two command groups and land as two boat teams with the BLT commander and executive officer respectively. Normally, the naval gunfire liaison party, artillery liaison party, tactical air control party, and shore party liaison personnel accompany the BLT commander in the advance command group, which usually lands after the second wave. The battalion executive officer, designated staff officers, and necessary communication personnel usually land with the heavy weapons or reserve rifle company to establish the BLT command post.

175. RESERVE RIFLE COMPANY'S ACTIONS

a. The reserve rifle company may land in one or two scheduled waves. If possible, the company is landed unopposed near the center of the battalion beach to place it ashore relatively intact in the center of the BLT zone of action. It may also be landed behind the most successful assault company. If fighting is still in progress on the beach, or if unforeseen obstacles exist on or near the beach, the reserve may be delayed in the vicinity of the line of departure and landed on the BLT commander's call. It is prepared to land at alternate landing places designated by the BLT commander.

b. The reserve company may be used to replace an assault company that has been depleted by severe losses or to restore the preplanned BLT scheme of maneuver following an error in landing of an assault

company. It may be used to continue the penetration of enemy beach defenses or to conduct an envelopment as part of a coordinated attack. It may also provide detachments to destroy any isolated resistance found in the beach area or to furnish flank security. When possible, the BLT reserve remains under cover inland from the beach until it can be decisively used.

c. The reserve company is assigned an assembly area where it may move immediately after landing. The company commander reports to the BLT commander for latest information on the situation and for orders. He carries out the normal duties of a reserve company commander, anticipating and preparing for the company's future use.

176. BLT COMMANDER'S ACTIONS

a. During the initial assault, the BLT commander regains control of the action ashore and completes the organization of supporting fires. During the ship-to-shore movement and landing, he maintains some contact and control by radio. Upon landing, he moves to a location where he can best direct operations. The early establishment of wire communication helps him to control his unit.

b. He supports the assault companies by requesting naval gunfire and air support through the artillery liaison officer, or by employing 81-mm mortar fire and, if available, fire from amphibious tanks. He receives target information from front line infantry, artillery, and mortar forward observers, air observers, and intelligence personnel located at the battalion observation post. When fire is requested

upon a target in the battalion zone of action, the BLT commander consults his liaison officers and decides upon the type of supporting fires to be delivered. The liaison officer concerned then arranges for the supporting fires.

177. SEIZURE OF BLT BEACHHEAD LINE

a. When they have completed their initial reorganization, the assault companies resume the advance to seize the BLT beachhead line. This line is usually located to permit its early seizure. It extends far enough inland to prevent direct fire of machine guns and ground observed high angle fires from being placed on the beach. Also, it is readily identifiable by well-defined terrain features. It includes terrain whose capture will assist further advance.

b. In conducting the attack through a zone of strong enemy resistance, it is seldom possible for the companies to maintain a uniform rate of advance along the entire BLT front. Continuity in the progress of the attack is maintained by coordinating the movements of the assault companies with naval gunfire and air support, and by timely and proper use of the reserve. Because the assault companies are apt to become disorganized after the advance inland, successive objectives may be used to coordinate the attack. The assault echelon does not delay the advance at intermediate objectives. The advance pauses only long enough at the battalion beachhead line to permit reorganization of the assaulting troops. The battalion beachhead line may also be used to coordinate a passage of lines or a change in direction

of the attack with naval gunfire and air support. The assault echelon does not delay unnecessarily at the battalion beachhead line, but continues the advance to seize that part of the regimental beachhead line in the BLT zone.

Section III. CONSOLIDATION OF REGIMENTAL BEACHHEAD LINE

178. ESTABLISHMENT OF THE REGIMENTAL BEACHHEAD IS AN OFFENSIVE MISSION

a. Upon seizure of its objective, an assault BLT usually consolidates that part of the regimental beachhead line in its zone. Consolidation involves preparations for tactical defense and for continuing the attack, including the organization of supply and evacuation installations on shore to support the BLT and to meet the requirements of projected tactical operations of the RCT.

b. Although it is necessary to keep the enemy from the beaches, the establishment of the regimental beachhead line is an offensive, not a defensive mission. Except in the case of a defensive mission, the regimental beachhead line is a tentative main line of resistance to be used in case the enemy counterattacks before the advance is resumed, and is organized and occupied to the extent demanded by the situation. It includes terrain features that will assist the advance inland and that will prevent light artillery fires from being placed on the beaches. Establishment of the regimental beachhead line lets the regimental commander organize and regain control of his assault BLT's while he lands reinforcements and secures information to base ensuing operations.

c. The form of the regimental beachhead depends largely on the terrain features in back of the landing beach and the extent to which available units are able to expand initial landings and organize occupied ground. The relative desirability of initial defensive positions against anticipated enemy reaction to the landing also influences the general beachhead line. The form of the beachhead usually does not remain fixed but constantly expands forward as additional troops and shore facilities are landed. Maximum effort is made to improve the occupied area against ground or air attack and to include additional terrain features that can assist projected operations.

179. BLT COMMANDER'S ACTIONS

a. When the BLT has seized its part of the regimental beachhead line, the BLT commander directs the consolidation of the position, the reorganization, and the preparations to defend or to continue the attack on the regimental commander's order. During the consolidation, the BLT commander directs active reconnaissance to secure the position. The rifle companies send out small security groups that are strong in automatic and antitank weapons to maintain contact with the enemy or to determine the extent of his withdrawal. These groups patrol far enough in advance of the regimental beachhead line to screen it from hostile observation and to give warning in case of counterattack.

b. The orders of the BLT commander include—

(1) Specific areas where reorganization is to be accomplished.

(2) Security measures, particularly against counterattack.
(3) General location of the temporary line of resistance and assignment of responsibility for its defense.
(4) Position areas and missions for the battalion supporting weapons.
(5) Defensive fires for artillery and other supporting units.
(6) Forward movement of ammunition and supply vehicles, and other administrative tasks such as assembling and disposing of stragglers, prisoners of war, and evacuation of the wounded and dead.
(7) Command post location.

c. Minimum reorganization procedure includes a check on casualties and remaining strength, designation of leaders for units if necessary, replacement of specialists, equalization of strength of units, and redistribution of available weapons and ammunition. Prompt reports by each leader to his immediate commander on the status of his unit are essential. The battalion commander makes a similar report to the regimental commander.

d. If, because of hostile interference, it is both impossible to advance and impracticable to take methodical steps for immediate defense, the troops dig in where they are. When no immediate further advance is contemplated, the BLT commander fixes the beachhead line to conform to the regimental commander's orders, and to make best use of the terrain. Readjustments may be made during darkness. The BLT commander coordinates the fires of

the heavy weapons company and the weapons platoons of the rifle companies. He arranges for mortar and artillery support and, if available, naval gunfire and air support. For principles governing the organization and conduct of the defense, see FM 7–20.

180. CONTINUATION OF ATTACK

Continuation of the attack beyond the regimental beachhead line is initiated only on the regimental commander's orders. The action of the BLT is the same as in normal ground combat (FM 7–20).

Section IV. COMMUNICATION

181. COMMUNICATION DURING THE ASSAULT

a. Maximum means of communication are used by the unit commanders during the assault. Company communication personnel accompany their units. Battalion communication personnel are organized and landed in depth. Enough personnel and equipment accompany the BLT commander and the BLT executive officer in their free boats, while the balance of the communication platoon arrives in subsequent waves.

b. Initially, *radio* is the principal means of communication. Usually equipment is hand-carried and placed into operation on order as the units arrive on the beach. Operators accompany commanders in the boats and during the assault. Nets open at the designated time and operators and replacements are kept available until other means of communication are installed. Emphasis is placed on correct security and procedure so that the maxi-

mum operational data may be transmitted. Radio nets established by the BLT include—

(1) The BLT command net, linking the BLT commander and his company commanders. Commanders of attached or supporting units may be included in this net.

(2) The BLT special net, including attached or supporting mortar, tank, light aviation, engineer, medical, and other units not included in the BLT command net. The net control station, operated by BLT communication personnel, accompanies the BLT commander as he moves inland.

(3) The BLT ship-to-shore net, linking the BLT ashore and the floating BLT rear echelon.

(4) The 81-mm mortar platoon fire control net, including radios at the mortar OP's, fire direction center, and mortar positions.

(5) The company command net, including (within companies) rifle company commanders and rifle platoon leaders.

(6) The heavy weapons company command net, including the heavy weapons company commander and platoon leaders.

(7) The tactical air control nets, operated by TACP to direct support missions by tactical aircraft. The personnel and equipment normally accompany the BLT commander.

(8) The shore fire control spotting net, operated by the navy, is used to request and direct naval gunfire. Artillery forward observers are in this net.

(9) The RCT command net, linking the BLT commander and the RCT commander.

(10) Other radio nets, including an additional net established by the shore party advance echelon, linking the shore party to the ship.

c. Normally the battalion shore party commander comes ashore with the reserve company. A radio set may be installed for communication between the BLT command post and the shore party CP. Radio communication may also be established between the BLT and the commander of the naval platoon of the shore party.

d. Terrain, distance to objectives, and rate of advance determine the *wire* system of a BLT during the assault. Normally, as each echelon having organic wire equipment arrives ashore, it begins establishing wire communication. Wire circuits, whenever possible, parallel radio channels so that reliance need not be placed entirely on radio. As the assault companies cross the beach (or at a predesignated inland point) each leaves a wire line tagged and easily identified. Upon arrival of elements of the BLT communication platoon, these lines are connected to the BLT switchboard, giving early wire communication between the BLT commander and the assault company commanders.

e. Prior planning also includes provisions for early wire communication between the BLT commander and the CP of the shore party. Wire communication is installed between the BLT and regiment by a regimental wire team. Normally, the regimental wire team accompanying the BLT ties a line at the proposed initial regimental CP location and proceeds inland with the wire to the BLT command post.

f. Message centers are established as soon as practicable to speed the transmission of messages. Message center personnel accompanying the leading elements of the BLT communication platoon. Companies make frequent exchanges of their messengers at the battalion message center. This procedure permits the company messengers to be familiar with the location of both the company and BLT command posts. As opposed assaults often result in casualties to communication personnel and damage to communication equipment, commanders place increased emphasis on rapid, efficient messenger service. In emergencies the BLT commander has access to the artillery liaison party's communication facilities, which parallel his own communication to the front and rear.

g. Visual and sound signals are prearranged for use during the assault.

h. For battalion shore party communication, see paragraphs 218–224.

182. COMMUNICATION DURING THE REORGANIZATION

a. The reorganization period gives the BLT communication officer an opportunity to supervise the reorganization, consolidation, and improvement of the BLT communication system. Wire lines are shortened and policed and new circuits are installed to replace lines that are difficult to maintain. Radio nets may be reorganized for more effective use. Faulty equipment is replaced or repaired and operator's maintenance is performed on all serviceable items of signal equipment.

b. Replacements for casualties are requisitioned and substitutions are made for communication personnel for whom trained replacements are not immediately available.

c. During the reorganization, the BLT communication officer prepares a signal plan for the continuation of the attack. Formulation of the plan requires him to make a detailed reconnaissance of the BLT area and to be familiar with the tactical situation.

CHAPTER 10

ROLE OF SUPPORTING ARMS

Section I. FIRE SUPPORT COORDINATION

183. DEFINITION

Fire support coordination is the technique of coordinating and integrating the available fire power of artillery, naval, and air force units used in the support of ground combat troops.

184. GENERAL PRINCIPLES

Each supporting arm is used on missions best suited to its capabilities. Before the artillery is established ashore, fire support is provided primarily by naval gunfire and air. When all three means of fire support are available, a priority is established usually after giving consideration to the type of target. In the assignment of most fire support missions, first consideration is given to the capability of the artillery to accomplish the mission. If because of range limitations, type of target, status of ammunition supply, or requests involving other missions, the artillery cannot deliver effective fire on the target, next consideration is given to naval gunfire support. If, after considering the same factors, it appears that available supporting naval units cannot deliver effective fire on the target, air support is requested. Flexibility in planning and execution is maintained to meet situations which require the em-

ployment of more than one means of fire support on the same target or targets. Fire support coordination must insure that such fires are properly integrated and that they serve the purpose of massing an overwhelming volume of fire at the right time and place. The fire support coordination system must be flexible enough to permit prompt attack of targets of opportunity, concentrations of all available supporting fires, and deviation from the fire support plan when necessary to meet changing situations.

185. RESPONSIBILITY

The BLT commander is responsible for the fire support coordination for his BLT. The field artillery liaison officer from the direct support field artillery battalion acts in the capacity of a special staff officer of the BLT commander for fire support coordination. He is trained to coordinate all the nonorganic fire support means available to the BLT commander, including artillery, naval gunfire, and air support. Coordination is accomplished by conference between the artillery liaison officer, the naval gunfire liaison officer, the forward air controller, and other liaison officers representing means of fire support which have been designated for coordination.

Section II. NAVAL GUNFIRE SUPPORT

186. CHARACTERISTICS OF NAVAL GUNFIRE SUPPORT

a. Fire support for the BLT is furnished by naval units before the establishment of the field artillery on shore. After the field artillery is able to take

over fire missions, the naval units continue to furnish supplementary support to the limits of their range, or as long as the hostile opposition requires.

b. The mission of naval gunfire support is to destroy or neutralize shore installations that would prevent ships from arriving and remaining in the transport area; to destroy or neutralize enemy defensive installations, weapons, and personnel so that assault units can land without undue losses; and to support the subsequent land attack as long as the action is within range.

c. Naval gunfire support varies in some details from the support given by field artillery units—

(1) Because of their fixed installation, naval batteries are always in position ready to fire.

(2) Because of their fixed installation, mechanical hoists, power loading, and the proximity of the ammunition supply, naval guns have a more rapid rate of fire than artillery weapons of comparable calibers.

(3) Naval guns have a higher muzzle velocity than field artillery weapons. This gives them greater penetrating power and greater demoralizing effect on the enemy. Naval guns are unable to reach defiladed areas that can be reached by artillery howitzers. This limitation can sometimes be overcome by using reduced charge or greater range, or by shifting position to get enfilade fire.

(4) The relatively flat trajectory of naval guns limits their effectiveness as close support weapons because it requires bigger safety

distances between the burst of the shell and the friendly troops. Because of the narrow deflection pattern of naval guns, lines of fire which parallel friendly front lines permit fires to be placed closer to friendly troops. This particularly applies when fires are directly observed from aboard ship.

(5) Naval gunfire support provides extremely large caliber firepower at high rates of fire. This makes naval gunfire very useful for missions of destruction against strong fortifications and armor or for neutralization of large areas.

187. ORGANIZATION FOR NAVAL GUNFIRE SUPPORT

a. A BLT is supported by one or sometimes two direct support ships. The direct fire support ships are part of a fire support unit. The fire support unit is a temporary task organization consisting of those ships and craft engaged in the delivery of naval gunfire support in the same general area. The composition of each fire support unit depends on its mission, the available guns, and the number and types of targets it will probably engage. Thus, a light cruiser and one or more destroyers or support type landing ships might comprise a fire support unit. Combat ships heavier than light cruisers are not usually placed in direct support of BLT's but are held in general support by higher commanders.

b. The naval gunfire liaison officer with the BLT commands the shore fire control party. He is trained and experienced in shore bombardment and in the use of communication to control naval gunfire sup-

port. He has a complete plan of naval fires. He accompanies the BLT commander and establishes himself near the BLT command post. He monitors the fire support requests and advises the BLT commander on the use of naval gunfire. As the naval member for fire support coordination, he confers with the air and artillery liaison officers on the suitability and assignment of targets.

c. The artillery liaison officer with the battalion landing team coordinates all the nonorganic fire support means available to the battalion—including artillery, naval gunfire, and air support. In accomplishing this function he confers with the naval gunfire liaison officer and forward air controller concerning the use of naval gunfire and air attack in coordinating with other required fire support.

d. The necessary adjustment of naval gunfire is accomplished by air observation, both organic and high performance; by direct observation from firing ships or observers afloat or ashore. Communication systems are arranged so that as the field artillery is established on shore, all observers can adjust the fire of any arm.

188. PLANNING THE NAVAL GUNFIRE SUPPORT

a. The necessary communication and fire support plans are drawn up by the fire support coordinator or coordination centers at each level of command. Estimates are made of the expected number and type of enemy targets. The naval representative makes an estimate of the number of ship days and amounts and types of ammunition required for the preliminary bombardment, D-day fires, and subse-

quent fires. At all levels, extracts of the approved naval gunfire plan are included as an annex to unit operation orders.

b. The naval gunfire plan for the BLT operation order generally includes plans for:

(1) The preliminary bombardment. This is a plan for the pre-D-day destruction of enemy installations.
(2) The D-day prelanding fires. This is the same as an artillery preparation and is designed to neutralize enemy artillery, personnel, and defensive works, and to disrupt enemy movement and systems of command and communication.
(3) Scheduled fires to follow the landing.
(4) On-call fires to supplement the scheduled fires.

Section III. AIR SUPPORT

189. MISSION AND CONTROL OF AIR SUPPORT

The mission of a tactical air force in support of an amphibious operation is the same as in normal combined operations: to gain and maintain air superiority; to isolate the battlefield; and to provide close air support to ground operations (FM 31–35). The BLT commander may request preplanned air support, in which case the request is coordinated and consolidated by higher commanders and is included in the overall air support plan for projected operations. The preplanned requests may include aircraft on air alert (on station) status. He may also request close air support missions on an on-call basis

in which case these requests are handled as rapidly as possible and ordered by the control agency for immediate execution by aircraft on station over the objective area or on a ground alert status when practicable for close air support. The control of air operations may be by Naval, Marine or Air Force commanders. All tasks in air support may be performed by Naval or Air Force aircraft operating from aircraft carriers or air bases ashore within supporting distance of the objective area.

190. ORGANIZATION FOR AIR SUPPORT

a. The organization of air elements in an amphibious operation varies with the service furnishing the support, the type of support required, and the number and types of available air units. Normally, the direct link between the BLT commander and the available air support is through the Tactical Air Control Party (TACP) attached to the BLT.

b. The Tactical Air Control Party (TACP) is a specially organized team designed to visually direct, by voice radio, close tactical air support strikes in the immediate vicinity of the front lines. It is a highly mobile element having air-ground communication for contact with aircraft and point-to-point communications with pertinent tactical air direction centers (TADC).

(1) The primary function of the Tactical Air Control Party is to direct aircraft onto designated targets. It also receives reports from reconnaissance and fighter aircraft concerning friendly and enemy activities, and the Forward Air Controller advises the

BLT commander on the capabilities, limitations, possible armament, and use of aircraft in close air support missions.

(2) The number of personnel assigned to a Tactical Air Control Party may vary to meet specific situations. Normally it consists of:

(*a*) One Forward Air Controller (FAC) who is a combat experienced fighter pilot, familiar with the problems of tactical air strikes against ground targets. He is responsible for the Air Force personnel and equipment assigned to the team, and for the execution of all assigned functions.

(*b*) One Radio Repairman.

(*c*) Two Radio Operators.

c. The TACP is in direct radio communication with the tactical air direction center (TADC) or the tactical air control center (TACC) whether ashore or afloat (in the AGC).

191. EMPLOYMENT OF AIR SUPPORT

a. The tactical air control party lands with the BLT commander and operates in the vicinity of the BLT command post. During the initial assault when control of the air is still afloat, the TACP may transmit emergency requests to the TADC or to the Tactical Air Coordinator (airborne). Normal requests for air support are transmitted on the air request net, higher echelons of command monitoring all such requests. Preplanned close air support missions are requested through the chain of command, consolidated and coordinated normally at division or higher level for inclusion in the over-all air support

plan. The division or higher echelon in the latter case of preplanned air requests, makes a single consolidated request for the necessary air action to support the force for which it is responsible.

b. Requests for air strikes include:

(1) Description of target.
(2) Location of target.
(3) Results desired.
(4) Time limit (latest time strike can be performed).
(5) Tactical significance.
(6) Friendly troop positions.

c. Disapproved requests are returned to the originating unit with the reasons for their disapproval.

d. The air attack of front line targets is controlled and directed by the tactical air control party. Front line positions of friendly troops must always be known before a close air support strike is delivered. These positions may be indicated by distance and direction with reference to the target or by coordinates, or may be marked by panels, pyrotechnics, electronic devices or otherwise, in which case the tactical air coordinator (airborne) will be notified. Targets may be designated by coordinates and, where possible, smoke shells of mortars and artillery, as well as other marking devices, should be used to assist in marking the target area.

e. The forward air controller is the air member for fire support coordination at the BLT level. In conference with the naval gunfire liaison officer and the artillery liaison officer, he assists in preparing recommendations for the use and coordination of air strikes with the artillery and naval gunfire sup-

port to obtain the maximum efficiency in the use of all supporting fires.

Section IV. FIELD ARTILLERY

192. FIELD ARTILLERY MISSIONS IN AN AMPHIBIOUS OPERATION

Field artillery missions in an amphibious operation are—

a. To support the infantry (armored) units by fire, and to neutralize or destroy those targets that are most dangerous to the supported arms.

b. To give depth to combat by counterbattery fire, by fire on hostile reserves, by restricting movement in enemy rear areas, and by disrupting hostile command agencies.

193. FIELD ARTILLERY EMPLOYMENT

a. The field artillery employment in the initial phases of a landing operation differs from its employment in ordinary land warfare as follows:

(1) It is not used in the preliminary preparation. This is executed by naval and air units. One possible exception is when artillery can be placed on islands within range of the landing beach before D-day.

(2) The amount, type, and organization of field artillery varies with the needs of each operation. The artillery lands with reduced personnel, transportation, and equipment. Characteristics of available landing craft and unloading conditions on the hos-

tile shore may dictate a change in the type of weapon normally used.

(3) Initial position areas are very restricted and much closer to the front lines.

(4) Field artillery fires are closely coordinated not only with aviation but also with naval gunfire support.

b. Field artillery support for BLT's may be given either by the artillery battalion in direct support of or attached to the infantry regiment, or by artillery units sub-attached to the infantry battalion. Command is decentralized only as necessary for maximum support. It is centralized as soon as the next higher artillery commander is able to resume it. The commander of an artillery unit attached to the BLT presents his plan for employment in the form of recommendations. If approved, they are issued as the artillery annex to the BLT order and include:

(1) Amount and type of artillery to be embarked.

(2) Transport and prime movers to be embarked.

(3) Ammunition to be carried in the assault shipping.

(4) Coordination of survey and firing charts.

(5) Procedure for coordination of air attacks, naval gunfire, field artillery fire, and antiaircraft protection.

(6) Coordination with infantry weapons.

(7) Priority for landing artillery.

(8) Restrictions on ammunition expenditures.

(9) Special instructions for artillery units.

194. FIELD ARTILLERY IN THE LANDING PHASE

a. Loading plans are governed principally by the anticipated tactical employment of the artillery. The loading is planned as follows:

(1) Reconnaissance parties land with the BLT assault elements. In amphibious operations an artillery commander uses a large party to assist him in reconnaissance and in expediting the occupation of positions. Necessary boat spaces are provided.

(2) Forward observer parties accompany rifle company commanders. The artillery liaison officer and naval gunfire liaison officer accompany the BLT commander.

(3) Vehicles and matériel are unloaded according to the prescribed priority.

(4) When unloaded, sections and batteries have the necessary arms, ammunition, and equipment for immediate support of the attacking troops.

(5) The effect of equipment and personnel losses from the sinking of any one vessel is minimized.

(6) Provision is made for maintenance of matériel and equipment while en route.

(7) Loading and unloading details are assigned to vessels.

b. Although landing priorities are established, artillery is usually landed on call when the beach is clear of enemy small arms fire (fig. 43).

c. Tentative position areas are selected from aerial photographs or from other knowledge of the terrain.

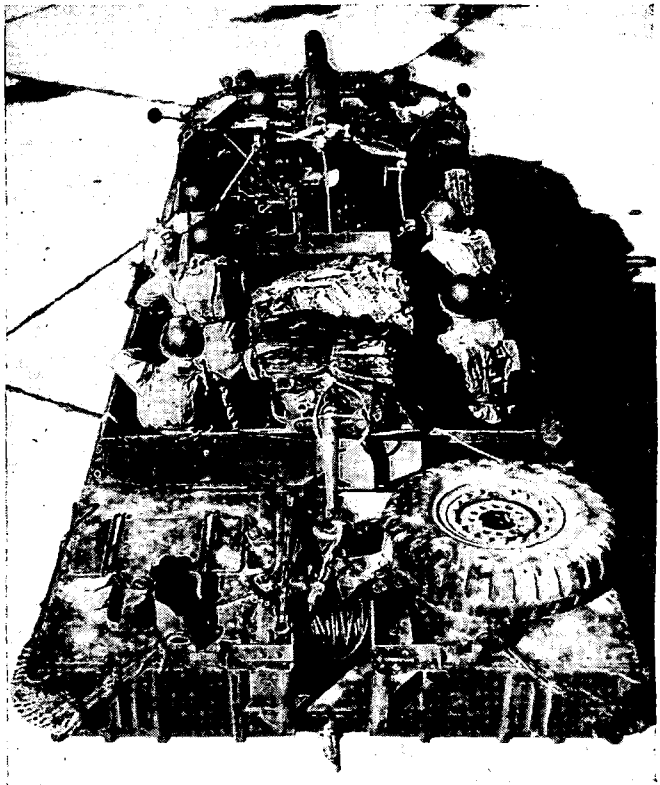


Figure 43. 105-mm howitzer loaded in a DUKW.

To prevent interference and confusion, the locations of these areas are coordinated with units that land early and with the shore party. Initial positions are usually near the beach and relatively exposed. Pieces are dispersed and dug in. Positions on the immediate beach are avoided because this area may be congested or under enemy fire.

d. The initial absence of commanding terrain suitable for artillery observation requires all observation agencies to be exploited to the maximum.

e. Air observation is an important complement to forward observation because it provides width and depth to the coverage before the seizure of commanding terrain. Light aircraft operating from naval carriers or LST's is used for air observation before a landing strip is established on shore. Light aviation equipped with pontons can be used when the sea is calm. When neither of the above methods can be used, high performance aircraft are used until a landing strip can be constructed on the shore.

f. The artillery can deliver observed fires as soon as the artillery units occupy their positions. Until accurate locations of friendly forward elements are received, the safety of the attacking troops is assured by the establishment of a no-fire line. This is a line short of which no artillery fire is delivered except on call from or clearance with troops occupying the area. The decision to execute unobserved fires during the initial phases of an amphibious operation is governed by the accuracy of available maps.

195. FIELD ARTILLERY OPERATIONS ASHORE

When centralized control has been gained, the field artillery support of an amphibious operation is the same as that of a normal land operation, with these exceptions—

a. Transportation shortages may continue to influence the mobility of the artillery unit and to restrict the ammunition expenditure.

b. Coordination between field artillery fires and

naval gunfire is necessary until the troops have advanced up to the limit of naval gunfire range. Naval gunfire may still continue to be needed on the flanks of the occupied area.

Section V. ANTIAIRCRAFT ARTILLERY

196. ANTIAIRCRAFT ARTILLERY MISSIONS

a. The general mission of AAA is to attack and destroy enemy targets in the air, on the ground, and on the water.

b. Antiaircraft mission of AAA automatic weapons attached to the BLT include—

(1) Protection of assault landing waves, boat operations in the beach area, and landed troops from low-flying aircraft and missiles.

(2) Protection against minimum altitude, low altitude, and dive bombing attacks of beach installations, airstrips, and port facilities.

c. The surface missions include—

(1) Providing close support for infantry by reinforcing fires of infantry heavy weapons.

(2) Assisting the BLT by attacking and destroying targets of opportunity on land.

(3) Attacking and destroying targets of opportunity on water.

197. ANTIAIRCRAFT ARTILLERY EMPLOYMENT

a. Automatic weapons units that are deck-loaded for the voyage are controlled by the Navy during the movement to the objective and for a limited time ashore. When the beachhead is secured, the control of AAA fire passes to the ground force commander.

b. The command of AAA automatic weapons is normally decentralized during the initial assault phase. Units may be attached to the BLT or to the field artillery unit supporting it. Priority of antiaircraft protection for installations is designated by the BLT commander.

c. Commanders whose forces include antiaircraft artillery will assign it that mission dictated by the greatest threat to the over-all mission of the force.

d. Antiaircraft artillery will be so emplaced as to best accomplish the assigned mission. Whenever possible, without prejudice to the assigned mission, it will also be sited to ease the attacking of targets other than those specifically included in that mission.

198. AAA IN THE LANDING PHASE

Automatic weapons units initially cover the critical assault period and the beach organization. They usually land, ready for action, with the unit or units being supported or protected. Weapons, ammunition, and personnel are loaded in the same landing craft. Initially, only essential personnel and equipment are taken ashore.

199. AAA OPERATIONS ASHORE

a. Units intended for beach defense are not extended inland with assault elements or otherwise dissipated.

b. Automatic weapons landed to accompany the assault elements inland are used according to their mission.

Section VI. ARMORED UNITS

200. AMPHIBIOUS TANK EMPLOYMENT

The primary mission of the amphibious tank is to provide fire support during the approach to the beach and during the landing of assault troops. Amphibious tanks may precede or move with the first wave (fig. 44). Whenever possible the tanks cross the beach, move a short distance inland, and cover the unloading of assault troops by fire. Where beaches are backed by seawalls or high shoulders, the amphibious tanks maneuver directly offshore, giving initial support until routes inland are prepared.

201. EMPLOYMENT OF LAND TANKS

a. Tank units with the RCT may be kept under regimental control, attached by platoons to BLT's, or attached to one BLT. The position of tanks within the assault force depends on the mission, the terrain, the available landing craft, and the enemy defenses and beach obstacles. In any case tanks and infantry operate together. When the terrain is suitable for tank operations and when the beaches are not heavily defended by antitank weapons and antitank obstacles, tanks may be in the leading waves. When the terrain restricts tank operations or when the beach is heavily defended by antitank weapons and obstacles, tanks are landed in later waves (fig. 45).

b. Paths are cleared through the obstacles before the tanks land. After they reach the beach, tanks are used as in other land operations. They may be given a secondary mission of engaging seaborne targets—particularly during the period when the

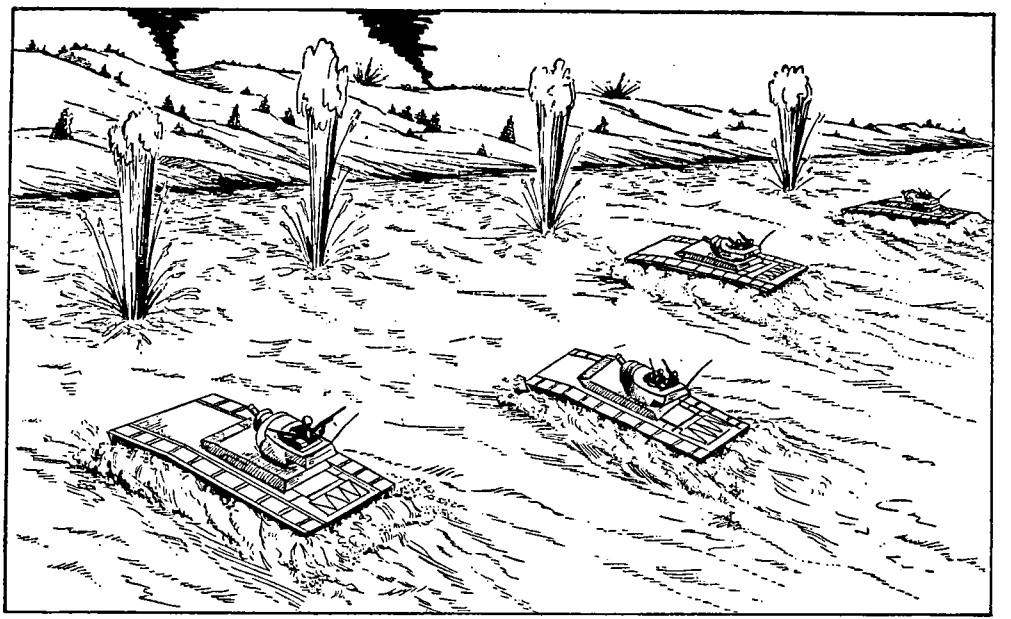


Figure 44. LVT (A) (4)s lead the assault on a beach.

beachhead is shallow. Normally, the tank units will be equipped with tank dozers, and may have other special equipment like flame throwers and rocket equipment. The tanks may be equipped with special flotation devices.

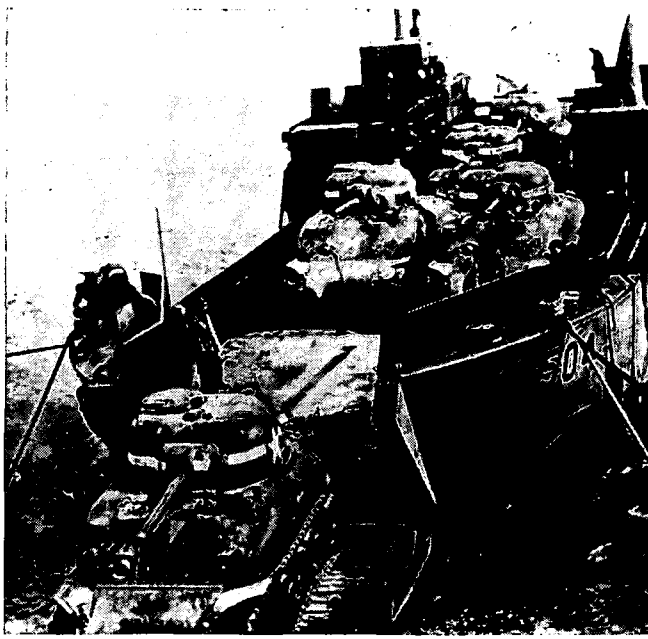


Figure 45. M–4 tanks arrive at the beach in an LSU (G).

c. The use of tanks in amphibious operations follows the principles set forth in FM 17–32 and FM 17–33.

202. MECHANIZED RECONNAISSANCE UNIT EMPLOYMENT

Mechanized reconnaissance units normally do not participate in the assault landing. They may land early, moving inland to perform their normal missions of security and reconnaissance.

Section VII. ENGINEER UNITS

203. MISSION

a. The mission of the engineer special brigade is to develop the beach support area and to provide continuous logistic support.

b. The mission of the division engineers is to assist the forward movement of combat units during and after the assault phase. A division engineer unit with a BLT varies from a platoon to a company, depending on the over-all landing formation and the expected obstacles.

(1) With prior planning and special training, division engineers are able to assist naval units and engineer shore companies to remove underwater obstacles.

(2) On some beaches, division engineers may be required to assist in clearing lanes for assault infantry and armored units.

(3) When the beachhead is seized and the assault units are reorganized, division engineer units continue normal support of the infantry units in their subsequent attack inland.

204. EMPLOYMENT

a. Division Engineers.

(1) Prior to the training phase, division engineers assist in preparing the training area. Their initial training includes individual training in the use of demolitions, and mine detection and removal.

(2) Division engineers take part in unit training and rehearsals with the BLT.

(3) During the landing phase, division engineers may be used as demolitions men in assault teams. They may also be used by squads or platoons in support of rifle companies. Where major obstacles exist, these squads and platoons operate as units. This method is particularly suitable for demolishing obstacles, breaching seawalls, and providing vehicular gaps through extensive mine fields. All breaching efforts are part of an over-all gapping plan.

(4) After the landing phase, the division engineers continue to assist the forward movement of front line units.

b. Engineer Amphibious Units. When available, engineer special brigade elements provide the nucleus for all shore parties. The use of shore parties is described in chapter 12.

c. Nondivisional Engineer Units.

(1) If engineer special brigades are not available for the operation, nondivisional engineer units may be used with other units to improvise the division shore party.

When so used, they are released when replaced by communication zone troops.

(2) Nondivisional engineer units may also be used to assist amphibious engineers and division engineers in preparing the training area. During the landing phase, these units normally supplement the strength of amphibious engineer units. Their functions may include aiding the Navy in removing underwater obstacles, breaching beach obstacles, and gapping mine fields. Thereafter, where necessary, they clear progressively the beach support area; properly mark uncleared areas; establish communication; select and improve sites for supply dumps; select and build or improve roads; construct unloading causeways for craft; set up a beach security organization; and set up the unloading and supply control organizations. The beach is then ready for the landing of supplies in bulk and additional troops. Nondivisional engineers are thereafter released, normally by D plus 2.

Section VIII. CHEMICAL UNITS

205. DEFENSE AGAINST CHEMICAL AND RADIOLOGICAL ATTACK

a. Amphibious operations are vulnerable to hostile chemical and radiological attack, particularly during the landing and the initial build-up. At these times, personnel and supplies are massed and ma-

neuver room is limited. These conditions favor either an enemy chemical or radiological attack, and great precaution is taken to minimize the effect of such attacks.

b. Directions and plans for chemical and radiological defenses of a BLT are prepared by higher commanders and issued early to give time to get defensive equipment and to conduct refresher training. Commanders supervise the individual defensive training and train unit gas specialists and radiological monitors. They prepare standing operating procedures that establish the battalion gas defense organization. This organization, augmented by the addition of radiological monitors, is also responsible for radiological defense within the battalion. The standing operating procedure governs the battalion's conduct during chemical or radiological attack and when crossing or working in contaminated areas. Plans are rehearsed during tactical training for the operation.

c. An enemy may attempt to restrict or to deny likely landing beaches by maintaining heavy contaminations with persistent blister gases of the mustard type or by contamination with radiological agents. If continued contamination is not feasible, or if the landing achieves surprise, he may attempt to restrict the beachhead by the use of these agents, seeking also to cause casualties, hamper operations, and lower morale. He also may use nonpersistent casualty chemical agents, to inflict severe losses when personnel are confined to a relatively restricted area. Friendly domination of the air greatly restricts this capability. The troops are prepared for these possi-

bilities by prior indoctrination and training. They are issued complete antigas equipment and radiation detection instruments; and by receiving training in techniques for crossing or operating in contaminated areas. Standard antigas equipment also provides a large degree of protection against radiological agents.

d. Unit techniques for crossing chemically contaminated beaches include blowing lanes by using bangalore torpedoes; projecting several strands of detonating cord ahead by rifle grenades or mortars; burning paths by portable or mechanized flame throwers; bulldozing lanes by removing two or three inches of contaminated earth; exploding containers containing bleach; or laying paths of matting or roofing paper. If possible, without jeopardizing successful completion of their assigned mission, units will avoid contaminations by maneuver. When contaminated areas cannot be by-passed and decontamination is not possible, crossings are made as rapidly as possible with individuals depending on personal antigas equipment for protection. Antigas ointments are used freely on exposed skin surfaces before crossings or occupation.

e. Decontamination is done by neutralization or destruction of the agents. Radioactivity, on the other hand, cannot be neutralized or destroyed. Decontamination of radiological corrupted areas depends on physical removal of the agents from the area or covering contaminated surfaces with a shielding material. Both methods could be used by units for crossing radiologically contaminated beaches. Lanes or paths might be covered over with a thick

layer of earth which would serve to insulate the radioactive materials on the beach. Bulldozers might be employed to cut paths through the contaminated areas. When these measures are not possible crossings are made as rapidly as possible. As in the case of chemical contaminations, individuals will use personal antigas equipment for protection.

f. When hostile chemical or radiological action is anticipated, decontamination equipment and agents are included in the combat loads and are kept readily available. Higher commanders may provide chemical corps service troops, such as decontamination units, mobile laboratory units, and supply units for early commitment to meet chemical and radiological threats. These units normally operate under the landing force command. (For details of chemical defense, see FM 21–40. For details of decontamination, see TM 3–220.)

206. CHEMICALS IN SUPPORT OF THE LANDING TEAM

a. Toxic chemicals used in support of an amphibious operation are employed to support the whole force. They are chiefly used during the preparation, and are most extensively used by the supporting air forces. Nonpersistent agents are most commonly used near the beachhead, persistent agents being restricted to enemy areas not likely to be occupied by friendly forces while the agents are effective.

b. Once ashore, attached or supporting chemical mortar battalions may continue direct chemical support of the tactical operations. These units, firing smoke and high explosive, are rarely in direct support of combat units smaller than a regiment.

207. CHEMICAL UNITS

Chemical Corps units may directly support a landing force for both service and combat missions. Combat missions are performed by mortar and smoke generator units, and service missions by decontamination companies, supply and maintenance units, and mobile field laboratory teams.

208. SCREENING SMOKES IN SUPPORT OF LANDING OPERATIONS

Landing operations frequently present many opportunities to use screening smokes to reduce the effectiveness of enemy fire. Smoke screens during preparation and during the assault landing are provided by supporting air, chemical, and naval units. During this phase the BLT weapons are not used. Once ashore, tactical smoke screens are maintained by supporting chemical units, regimental mortars, and artillery (fig. 46). Battalion smoke capabilities, such as light and medium mortars, and rifle and hand grenades, are then fully exploited to provide battalion controlled local screens. (For details of smoke operations see FM's 3–5 and 3–6.)

Figure 46. DUKW's laying smoke on beach.

CHAPTER 11

MEDICAL SERVICE

209. PRINCIPLES OF MEDICAL SERVICE

The normal land warfare principles of medical service apply to amphibious operations, as permitted by the special nature of those operations. Some of these principles follow:

a. The efficient operation of the medical service is a function of command. Commanders request the attachment of adequate medical personnel and equipment to meet this responsibility.

b. Early evacuation and hospitalization plans are made, based on the tactical plan.

c. Medical installations are set up only as required by the existing situation, or to meet the requirements of the immediate future. Medical facilities not required for these purposes are held in reserve. After a medical unit receives patients, its mobility depends on the evacuation of its patients or on leaving the patients to be taken over by supporting medical troops.

d. Sorting of patients occurs at every medical installation in the chain of evacuation. The physically fit are returned to duty at the first opportunity. No patient is sent farther to the rear than his physical condition or the tactical situation requires.

e. The impetus of medical evacuation is from the rear. Rear units evacuate forward units, relieving them promptly of the care of patients. Medical

supplies are delivered to advance medical installations.

210. ORGANIZATION AND DUTIES

a. The BLT is supported by one of the battalion medical platoons of the regimental medical company. This platoon is normally attached to the BLT for the assault. It is commanded by a medical officer who is the *BLT surgeon.* He is a special staff officer on the BLT staff. His duties include:

(1) Making medical and sanitary inspections and keeping the BLT commander advised of the medical situation.
(2) Recommending sites for BLT medical installations.
(3) Personally caring for and supervising the treatment of the wounded.
(4) Organizing the battalion medical platoon and attached medical personnel to furnish most adequately medical service.
(5) Conducting specialized amphibious medical training for all medical personnel attached to the BLT.
(6) Maintaining records and rendering reports.
(7) Preparing the BLT medical plan.
(8) Supervising the collection and evacuation of the wounded.
(9) Taking measures to get medical personnel and supply replacements.

b. The *assistant battalion surgeon* is a Medical Service Corps officer especially trained in emergency medical treatment. He assists the battalion surgeon

and supervises the use of the company aid men and litter squads.

c. The *battalion medical platoon* is operationally divided into three sections: a company aid section, the litter bearer section, and the aid station section.

d. During an operation, one medical aid man from the *company aid section* is assigned to the platoons of each lettered company of the battalion.

e. The *litter bearer section* is designed to meet the normal requirements of collecting the wounded and evacuating them from the company areas to the battalion aid station. The section is composed of three four-man litter squads and is usually reinforced for amphibious operations.

f. The *battalion aid station section* is capable of setting up and operating two aid stations, one under the battalion surgeon and the other under the assistant battalion surgeon. The specific functions of the aid station section include—

(1) Receiving and recording casualties.
(2) Examining and sorting casualties, and returning fit personnel to duty.
(3) Treating casualties as needed to alleviate suffering and to save life and limb.

211. ATTACHED PERSONNEL

During the early stages of a landing, attachments from the regimental medical company or from other medical units may be made to the BLT. The principle function is to relieve the battalion medical platoon of rearward evacuation from the aid station to the beach. Other specialist teams, such as surgical, may be attached for the assault.

212. THE PLANNING PHASE OF MEDICAL SERVICE

a. The success of the medical support depends chiefly on prior planning. The battalion surgeon, as a special staff officer on the BLT commander's staff, recommends the organization, the use, and the disposition of all medical personnel and installations. Limitations of space aboard ship and in landing craft largely determine the grouping and phasing of medical personnel in support of the BLT. Space limitations may also restrict the use of additional attachments.

b. The medical plan is flexible enough to provide for the dispersion of medical personnel and equipment, and to continue adequate support with losses as high as 50 percent of any or all sections.

c. The battalion surgeon and the BLO coordinate closely in preparing plans for the embarkation of medical equipment and supplies. A medical administrative plan based on the BLT operation order and the RCT administrative order is prepared and normally included in the BLT administrative order.

d. The medical platoon personnel study the terrain over which the BLT will operate to determine the lines of drift, probable casualty density, routes of evacuation, available cover, prominent terrain features, and other significant details. Since many of the medical platoon members will be working independently for some time after the landing, they need to know the ground intimately.

e. An initial battalion aid station site is selected by the battalion surgeon and identified by landmarks. It should be inland from the immediate beach area,

and possess all the characteristics required in normal operations plus accessibility to the beach. Alternate sites are also chosen, and an axis of evacuation is designated to assist in assembling medical personnel after landing. The approval and the reservation of selected sites are obtained from the BLT commander. The initial location is indicated in the BLT operation order.

f. The equipment and supplies selected for the assault are based on the terrain and the probable rate of casualties. Aid station packs are prepared and individual kits restocked and waterproofed. Packages of reserve medical supplies are also provided. These packages may be improvised from cauvass ammunition carriers or ammunition boxes. During training, dummy packs may be substituted to familiarize all personnel with the supply of these items.

g. Planning for the ship-to-shore movement includes the provisions for echeloning medical personnel and equipment. Company aid men accompany their assigned units. Some litter bearer squads are usually assigned to waves landing ahead of the aid station elements. Each squad may carry extra litters and medical supplies that are dumped at the initial battalion aid station location. The aid station section plans to land in two groups—the forward echelon under the battalion surgeon and the rear echelon under the medical assistant.

h. Other attached medical elements are phased during the assault to best support the evacuation and treatment of casualties, and to fit into the regimental medical plan.

213. EMBARKATION AND MOVEMENT PHASE

a. The battalion surgeon verifies the loading of all medical supplies and equipment aboard ship. Medical personnel are embarked with their assigned boat teams. Once aboard ship, the battalion medical platoon personnel are dispersed and there is no further opportunity for supplying or briefing individuals except as boat team members. They are told where the equipment and supplies to accompany them ashore are located aboard ship. Usually individual equipment, medical packs, litters, blankets, splints, plasma, and other items to land with them are stowed in troop compartments or in easily accessible places. Other matériel, including vehicles, are hold-loaded according to their assigned priorities.

b. The health, hygiene, and sanitation of all personnel embarked, as well as the care and treatment of troops admitted to the ship's sick bay, are the responsibility of the senior naval medical officer aboard. The ship provides medical supplies and equipment for use on board. Troop medical personnel assist or supplement the ship's medical personnel as required. Their equipment and supplies are not used for this purpose. Motion sickness preventives, water-purifying tablets, malaria suppressive drugs, and other special supplies for troops aboard each vessel are normally placed aboard by the BLT to be issued en route.

214. LANDING PHASE

a. In the ship-to-shore movement, *company aid men* are boated with the platoons to which assigned. Casualties occurring in landing craft are treated by

the aid men or naval personnel and returned to the ship without unloading at the beach. *Litter bearer squads* are boated according to phases and dispersed for landing (fig. 47). Some litter bearers are boated to precede the battalion aid station. They assemble casualties on the beach for evacuation, and move inland. The *battalion aid station* personnel are divided into two echelons. The advance echelon, usually under the battalion surgeon, lands with the BLT command group. The rear echelon lands with or immediately following the BLT reserve and is commanded by the assistant battalion surgeon. The *attached medical* teams are assigned to boat teams that will land them at the time and place desired.

b. Ashore, *company aid men* administer first aid to the wounded, and direct walking wounded to the beach for evacuation or to the battalion aid station when it is established ashore (fig. 48). They place casualties unable to walk in protected positions, and mark them for collection by the litter bearers.

c. Litter bearer squads move inland, searching for casualties and evacuating them to the beach evacuation station or the battalion aid station. They maintain contact with the companies they support.

d. The *forward echelon of the battalion aid station section* establishes the aid station in the preselected site. It sets up the minimum equipment needed for treating casualties. Supply bundles and extra litters and blankets are collected and stacked. The aid station is kept mobile for early forward displacement. When the station displaces, a guide is left at the old site to direct personnel to the new one.

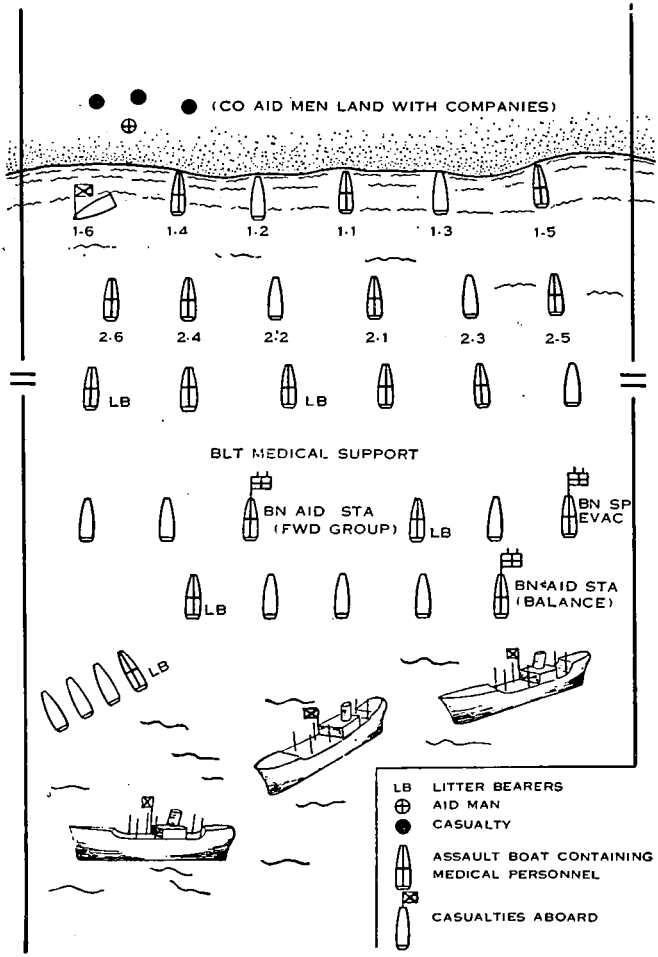


Figure 47. Medical support in the initial assault.

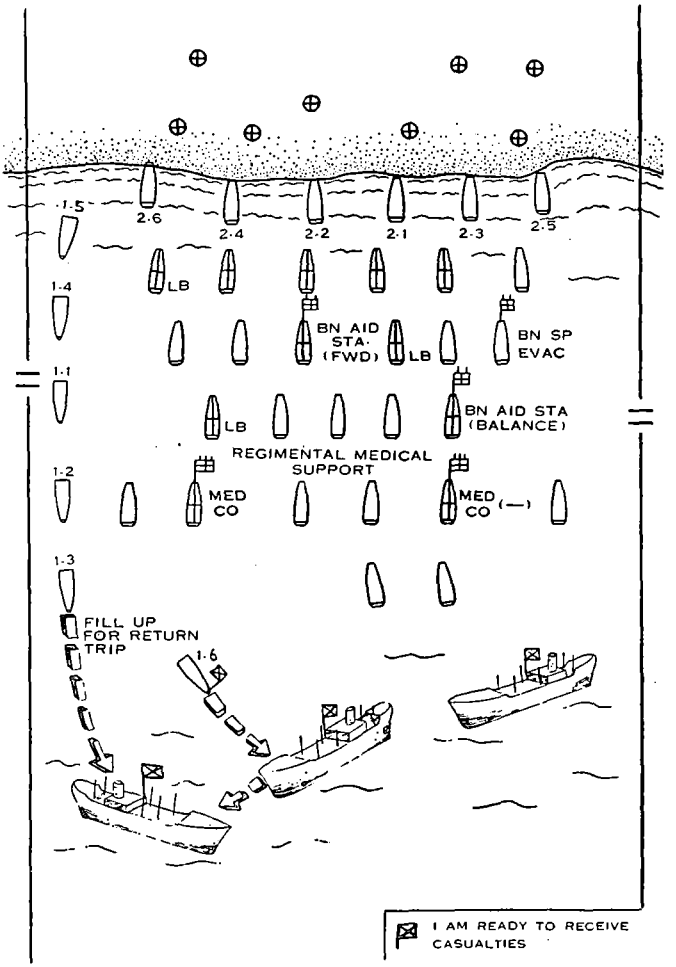


Figure 48. Medical support in the initial assault. The BLT moves inland.

e. When the *rear echelon of the battalion aid station section* lands, it moves to the site of the forward echelon. If the progress of the assault units is rapid, the rear echelon may pass through the forward echelon and establish an aid station in close support of the assault units. Otherwise it is consolidated with the advance echelon near the beach, supplementing the established aid station.

f. Before the beach evacuation station is set up, casualties are placed on landing craft for immediate evacuation to the ship. After the beach evacuation station is established, casualties are evacuated to that station direct until the battalion aid station is established. Here they are again tagged and recorded and evacuated to landing craft.

g. Casualty evacuation control is important to effective medical service afloat. It prevents the inequitable distribution of casualties, by number and type, to the casualty-receiving ships. During the landing, small craft carrying casualties from the beach report to a casualty evacuation control ship which is between the beach and casualty-receiving ships. The casualty evacuation control ship may be an LSTH (fig. 49).

h. Helicopters, if present and available, may be used to evacuate casualties from the beach.

215. BATTALION AID STATION ASHORE

Advantage is taken of cover, concealment, and camouflage in setting up the battalion aid station. Casualties are protected against artillery and mortar fire and against enemy air attacks by the construction of foxholes and air raid shelters consistent with the

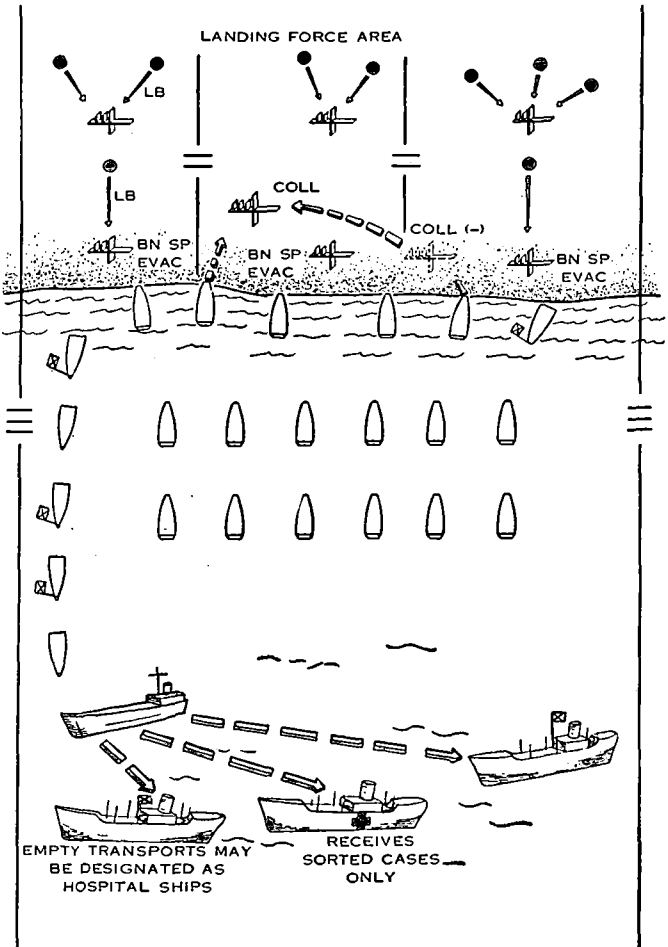


Figure 49. Medical support in the regimental follow-up. Collecting elements arrive and join to establish a regimental collecting station.

tactical situation. Abandoned enemy installations are utilized when possible. Care is also taken to protect the aid station against the enemy's infiltration tactics. The aid station is located to take the maximum advantage of local security furnished by the units it serves.

216. EVACUATION FROM BATTALION AID STATION

a. The evacuation of casualties from the battalion aid station is the responsibility of the regimental surgeon (FM 7–30). During the assault, the *litter bearer squads of the regimental medical company* may be attached to the BLT. These squads relieve the battalion medical platoon of evacuation from the battalion aid station to the beach. If the battalion aid station has advanced inland, the attached litter bearer squads take over the evacuation of casualties from the battalion aid station rear echelon to the beach. They also assist in the evacuation between the forward and rear echelons of the aid station. If the advance is held up and the battalion aid station is consolidated just inland, the collecting platoon squads assist the battalion litter bearers in collecting casualties from forward units.

b. After the beach evacuation station of the battalion shore party is established ashore, the medical company detachment moves forward with the battalion aid station. Under the supervision of the battalion surgeon, it continues evacuating casualties from the battalion aid station to the beach evacuation station until the regimental collecting station is established (fig. 50).

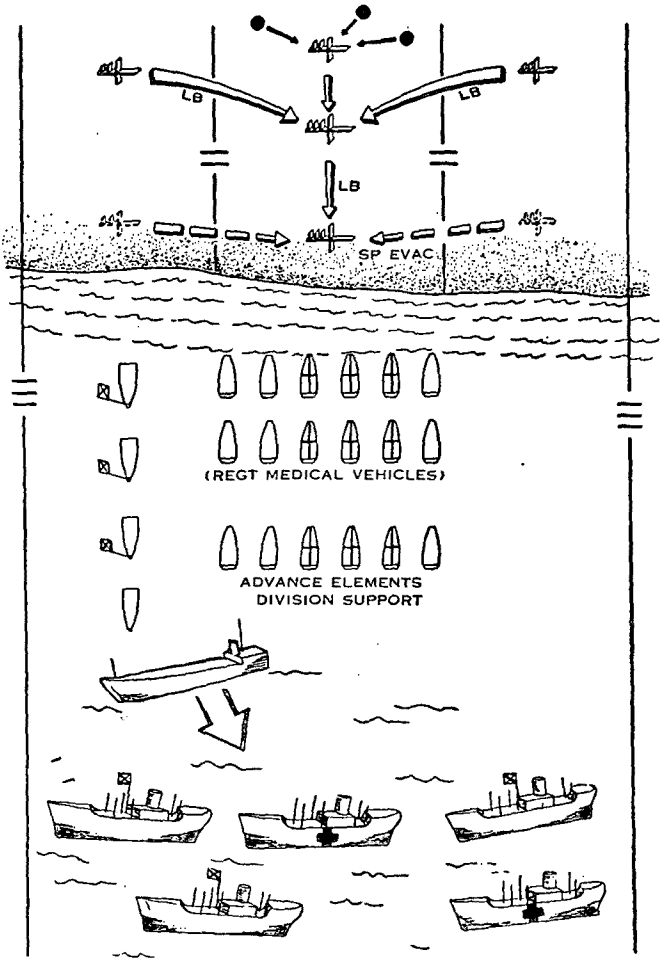


Figure 50. Medical support in the regimental follow-up. Battalion shore party evacuation stations clear their casualties and consolidate to form a regimental shore party evacuation station.

217. CONTINUATION OF SHORE EVACUATION

After the battalion aid station has consolidated and displaced forward, its operation follows the pattern for normal ground combat. Litter bearers from the regimental collecting platoon continue evacuation to the beach evacuation station until the regimental collecting station is established. When the ¼-ton ambulances are landed, the entire evacuation system begins to resemble that of a ground assault (fig. 51). As soon as possible, hospital units land and evacuation from the beach slows down (fig. 52).

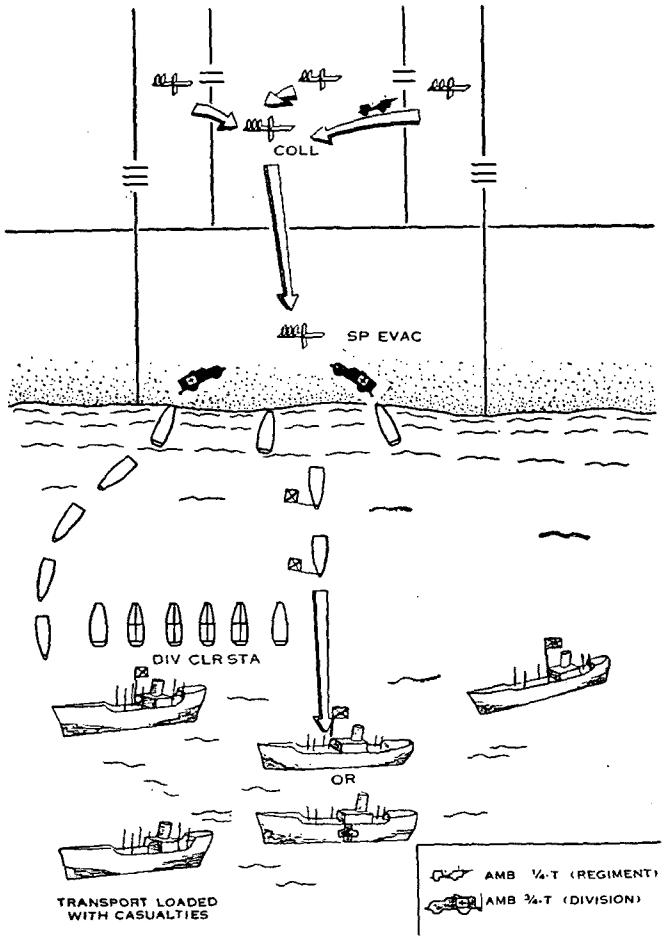


Figure 51. Division elements of evacuation chain move ashore.

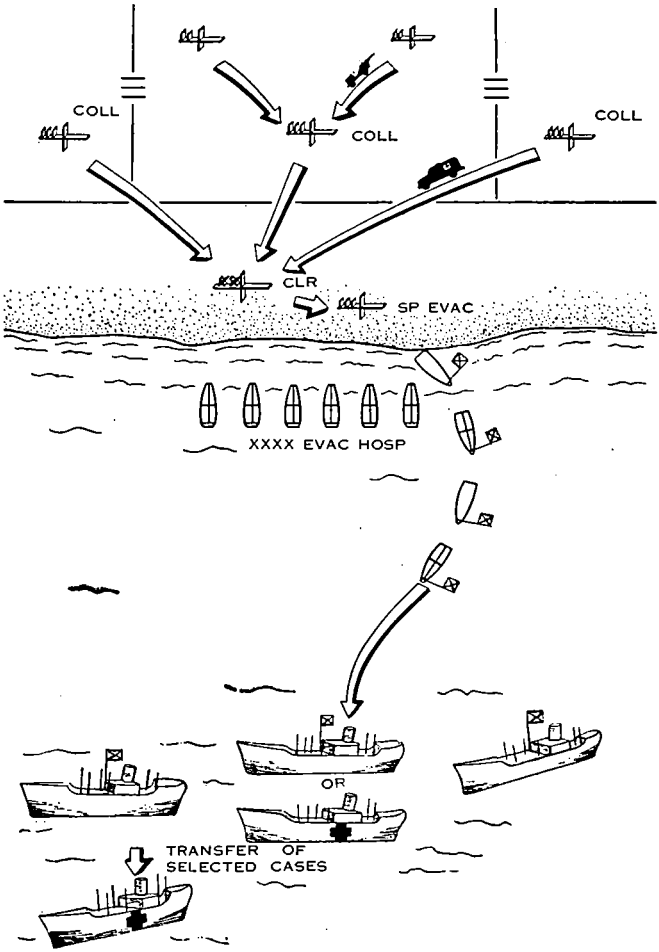


Figure 52. Division evacuation chain completed. Army phase beginning. Normal land medical evacuation follows.

CHAPTER 12

THE BATTALION SHORE PARTY

218. GENERAL

The shore party is a task organization formed for the purpose of providing logistical support within the beach support area to landing force units during the early phases of an amphibious operation. It comprises appropriate elements of an engineer special brigade or similar army organizations and elements of a naval beach group.

219. CONSIDERATIONS AFFECTING SHORE PARTY ORGANIZATION

The following considerations affect the organization and the use of shore parties in general:

a. Fighting troops cannot win battles along a front several thousand yards inland from the beach and at the same time unload supplies and equipment.

b. The unloading and distribution of supplies is as important as is the loading of ships.

c. Manpower alone is not enough for handling and unloading supplies. Special equipment and training are also needed.

d. The principle of economy of force does not permit the permanent assignment of a large number of troops to an unloading organization that functions for only a limited period during an operation.

e. A central authority ashore is required to control

and coordinate the unloading and disposition of supplies.

f. Shore parties need to be highly qualified, especially organized, equipped, and trained for establishing logistical services for landing forces on a hostile shore.

220. FUNCTIONS OF A SHORE PARTY

a. The shore party normally marks the beach for seaward recognition (fig. 53), clears approaches to the beach, marks underwater hazards, and establishes communication with elements afloat. It also selects beach exit routes, improves landing points if necessary, and eliminates all obstacles to rapid movement

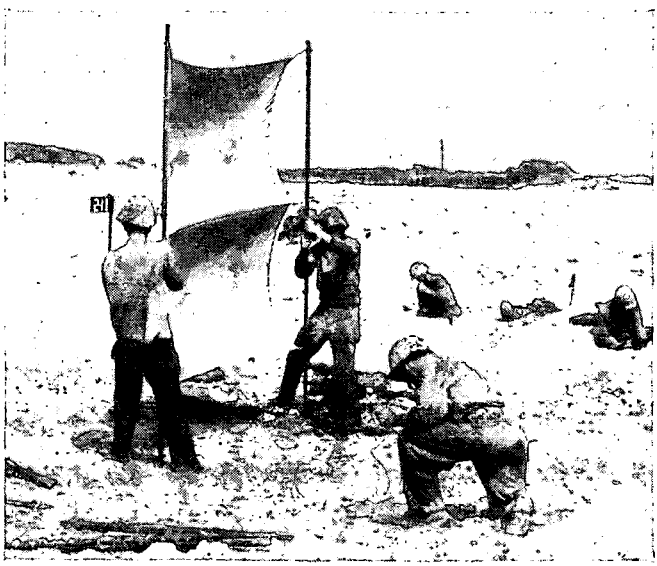


Figure 53. Personnel of headquarters platoon erecting a beach marker.

across the beach. Routes need to be clear from deep water to firm ground for craft, and inland for vehicles and foot columns. Beach approaches and routes across the beach are marked. Communication is established with BLT command posts and with all elements of the shore party, both afloat and ashore.

b. In addition, the shore party performs the following:

(1) Stevedoring.
(2) Lighterage.
(3) Lighterage control.
(4) Shore service for army craft.
(5) Further amphibious support of land warfare (shore-to-shore operation).
(6) Internal signal communication.
(7) Unloading lighters at beach.
(8) Construction of facilities for unloading.
(9) Establishing and operating an information center for incoming troops.
(10) Determining land utilization within the beach support area.
(11) Establishing and maintaining beach defense.
(12) Transportation of supplies to dumps.
(13) Unloading, storing, and issuing supplies at dumps.
(14) Constructing roads, parking areas, and hardstands.
(15) Establishing ordnance repair service for all troops within beach support area.
(16) Evacuation of casualties from landing force.

(17) Custody and evacuation of prisoners of war.
(18) Establishing and operating water points.
(19) Control of traffic on the roads.

c. Figure 54 shows a type beach support area diagram.

221. THE ENGINEER SPECIAL BRIGADE

a. The engineer special brigade is the special amphibious unit equipped and organized to perform shore party missions. The engineer boat and shore regiment is the basic operating unit of the engineer special brigade.

(1) The brigade has three engineer boat and shore regiments and is capable, with proper attachments, of landing a corps with three divisions abreast. With its attachments, it is referred to as a corps shore group.
(2) The boat and shore regiment, with attachments, is capable of operating a division beachhead and is referred to as a division shore party.
(3) Division shore parties are capable of subdivision into units to support regimental and battalion combat teams operating independently. Units of the division shore party are normally assigned tasks and areas of responsibility.

b. In a shore-to-shore operation, the boat battalion of the engineer boat and shore regiment has enough craft to move the assault elements of one RCT in one trip of its boats.

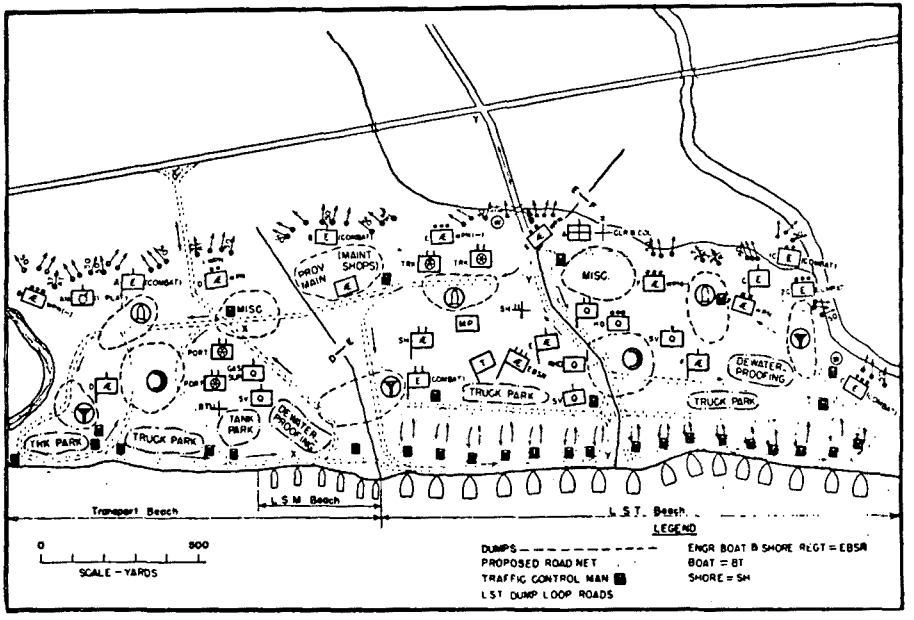


Figure 54. Type beach support area diagram.

c. In a ship-to-shore operation, the craft of the boat battalion may be used to supplement Naval craft during the assault, to remain in the objective area to continue unloading supplies, or to be used for shore-to-shore flanking operations.

d. In a landing force smaller than a regimental combat team, like a BLT acting alone (usually a shore-to-shore operation), the logistical problem can normally be met without a regular shore party. In this type of operation the engineer boat and shore regiment provides a liaison officer with a small detachment, including the necessary radio equipment, to coordinate the near-shore details relating to resupply convoys of landing craft. Only such craft and control personnel remain on the far shore as are required for minor tactical missions. The S4 of the task force sends the necessary trucks and personnel to meet arriving convoys and to clear the beach.

222. D-DAY DISPOSITIONS OF SHORE PARTY PERSONNEL AFLOAT

a. Shore companies (with their associated nondivisional engineer combat companies and service units, bulldozers, and other equipment required for tasks ashore before beaching the LSM's and LST's) are attached to embarkation groups and embarked in transports or in LSD's. They are assigned to waves of landing craft so as to be landed on the proper sections of the beach in the sequence required by their tasks. Although their use is intended as a division shore party, elements are attached to regiments and BLT's during the voyage to the objective area and in the early hours of the assault landing.

b. The shore party elements that land with the initial assault waves are—

(1) Reconnassance parties.
(2) Command parties.
(3) Gap assault teams.
(4) Other operational groups.

223. EMPLOYMENT OF SHORE PARTY PERSONNEL ON D-DAY

a. Gap assault teams clear lanes through beach obstacles.

b. Pioneer platoons and bulldozers of the shore companies and attached nondivisional engineer combat companies construct roads, clear areas, build unloading causeways for landing ships, and tow stalled vehicles and trailers without prime movers across the beach.

c. Reconnaissance and command parties check the plans and make necessary changes.

d. Medical aid men from the medical detachment, engineer boat and shore regiment, and from the attached medical company give first aid in the beach support area and establish a clearing station for collecting and evacuating the wounded.

e. In some instances, notably the assault of small, heavily defended islands, where neither the enemy nor our own troops have any room to maneuver, it may not be practical to conduct general unloading nor even to start operations for a beach support area until the enemy is cleared from positions along the shore. Where these conditions prevail, only such emergency supplies are brought ashore as are specifically requested.

f. Additional elements of the shore party are landed "on call" as the progress of assault troops permits them to exercise their normal functions.

224. SHORE PARTY PRIORITIES

The shore party elements required ashore early on the day of the landing and the general order in which they are required are of interest to assault BLT's. These are—

a. Gap assault teams from shore companies and non-divisional engineer combat companies.

b. Shore company reconnaissance parties with recorders, beach markers, radio operators (portable radios), and messengers.

c. Naval beach party survey personnel to check suitability of landing points for LSM's and LST's.

d. Medical reconnaissance personnel to check sites for aid stations and clearing stations.

e. Weapons platoons of shore companies.

CHAPTER 13

TRAINING

225. TRAINING MISSIONS

The BLT's amphibious training mission is to prepare individuals, units, and the staff to perform their assigned functions in a coordinated assault landing. To accomplish this, individuals and units must attain proficiency in:

a. Embarkation of personnel, equipment, and supplies aboard ships.

b. Shipboard routine, including physical conditioning of the troops and maintenance of equipment.

c. Debarkation and ship-to-shore movement according to the tactical scheme of maneuver.

d. Use of artillery, air, and naval gunfire support during all stages of the landing attack.

e. Initial logistical support of the attack, emphasizing the use and operations of the battalion shore party.

226. PHASES OF AMPHIBIOUS TRAINING

Amphibious training is normally divided into three major phases. The phases are separate and distinct, but they are accomplished progressively in the indicated order—

a. Shore-Based Training. This phase includes all training for amphibious operations that can be

effectively conducted while units are based ashore. It includes indoctrination, individual and unit training, staff training, and specialist schools. When additional facilities like boat pools, large landing craft, and fire support vessels are available, elementary joint training is included in the shore-based training. All shore-based training, excepting that using water-borne equipment, is conducted by using mock-ups and training aids.

b. Elementary Ship-Based Training. This phase includes ship-based training for units up to and including the RCT in debarkation, ship-to-shore movement, and landing exercises.

c. Advanced Ship-Based Training. This phase consists primarily of amphibious exercises, including problems designed to emphasize integration and teamwork of all landing force, naval, and air units. This training is the culmination of all previous training, and it tests the proficiency of participating units and their staffs. The functioning of logistical agencies and their integration into the common effort is stressed in these exercises, because their state of training can be satisfactorily measured only when they are actually engaged in their supporting functions.

227. ORGANIZATION FOR TRAINING

a. Amphibious training for army units is normally conducted at specified naval amphibious training centers. If appropriate facilities are available near the army unit designated to undergo such training, it may be trained at its home station by a troop training unit (TTU), a joint organization from an

amphibious training center. Normally the training center includes a joint headquarters charged with the preparation of training plans, determination of doctrine and technique, coordination of joint facilities, and general supervision of training.

b. The Navy operates shore bases to provide all amphibious training facilities for units designated for joint operations. These facilities include required schools. Army units at such bases are under naval control during amphibious training. Likewise, training under direction of the TTU outside the centers is under naval control.

c. Schools conducted at amphibious training centers may include—

(1) *Indoctrination school.* This school familiarizes commanders and staff officers with amphibious operations, in general, with troop training techniques, and with their duties and responsibilities in executing an amphibious operation.

(2) *BLT staff school.* This school familiarizes the BLT staff and special staff officers with the form and technique of preparing orders and annexes for an amphibious operation.

(3) *Transport loading school.* This school trains unit loading officers and their assistants in the principles of combat loading ships and craft.

(4) *Naval gunfire school.* This school gives technical instruction in spotting and controlling naval gunfire. The course is given to artillery, ground, and light aviation of-

ficers, and enlisted men who will function as forward observers.

(5) *Communication school.* This school trains a nucleus of communication personnel from BLT and higher units in the problems and techniques used in amphibious communication.

(6) *Amphibious intelligence school.* This school teaches intelligence and other selected personnel the special techniques required in amphibious reconnaissance.

(7) *Medical school.* This school teaches the use and functioning of medical units in amphibious operations.

d. Generally, an infantry division scheduled for amphibious training is organized for training according to the plans for the proposed operation. This includes the organization of assault BLT's. The BLT commander is responsible for the organization of his team. Attached unit commanders are on the special staff of the BLT commander. He coordinates the training of his battalion with that of all attachments.

228. INDIVIDUAL TRAINING

a. All individual amphibious training is completed during the shore-based training phase. The scope of individual amphibious training includes the technique of embarkation, requirements of life aboard ship, survival at sea, technique of debarkation, conduct during the ship-to-shore movement, and the assault of the hostile beach.

b. Individual training may begin at the home sta-

tion and be concluded at a designated training center. It generally includes the initial indoctrination and orientation of each man in the characteristics of amphibious operations; and it includes specialist schools for selected personnel. Individual training is conducted, as much as possible, concurrently with the various specialist schools so that all men will be available for unit training at the earliest possible time.

c. Training in the following subjects may be conducted at the home station —

(1) Naval customs and shipboard routine.
(2) Shipboard maintenance of individual and organizational equipment.
(3) Use of lowering lines.
(4) Use of cargo nets with shipside and landing craft mock-ups.
(5) Adjustment of individual equipment for debarkation.
(6) Debarkation and arrangement of personnel and equipment in landing craft, LVT, and DUKW.
(7) Boat discipline.
(8) Swimming, special survival methods, use of life belts, and rafts.
(9) Debarkation from landing craft, LVT, and DUKW's. (Landing craft and vehicle mock-ups.)
(10) Passage of beach obstacles.
(11) Characteristics of naval gunfire and close air support.

d. Throughout this training, emphasis is placed on the individual. Each man is thoroughly familiar-

ized with what is expected of him as an individual before unit training begins.

229. UNIT TRAINING

a. Unit amphibious training follows individual training. For effective execution, this training is decentralized to the BLT. The purpose of unit training is to prepare the BLT and smaller units to perform their unit functions in the ship-based training phase. It includes instruction and simulated practice in embarkation, shipboard routine, ship-to-shore movement, and assault landing tactics and techniques.

b. Unit training needs to be decentralized to the lowest commanders. Each commander is guided in his instruction by the mission and objectives assigned by the next higher commander.

c. Unit training begins at the home station, but may be continued at an amphibious training center unless additional facilities like landing craft or vehicles and a beach area are available in the vicinity of the home station. As each unit completes its shore-based training, it takes part in the unit training of the next higher echelon. Unit training of the boat team, platoon, company, and BLT includes the conduct of exercises emphasizing—

(1) Debarkation according to prepared boat assignment tables and debarkation schedules.
(2) Conduct of the ship-to-shore movement according to prepared landing diagrams and approach schedules. When the training reaches the BLT stage, the BLT staff pre-

pares complete plans for these problems as a continuation of their staff training.

d. Unit training in these subjects may be conducted at the home station—

(1) Organization of boat teams, boat waves, and the boat group.
(2) Formation and tactics of boat waves.
(3) Landing tactics and techniques.
(4) Preparation of boat assignment tables, debarkation and approach schedules, and landing diagrams.
(5) Waterproofing equipment.
(6) Activities of units while aboard ship.

e. Unit training is continued at a location in close proximity to a landing beach where debarkation platforms, landing craft, LVT's, DUKW's, and rubber boats are available. Unit training of the boat team, platoon, company, and BLT is conducted by carrying out small tactical problems.

230. ELEMENTARY SHIP-BASED TRAINING

a. Elementary ship-based training of all landing force units up to and including the RCT is conducted immediately following the completion of shore-based training. Units to be trained are embarked for participation in ship-based exercises to train the BLT as an integrated team.

b. The purpose of the training during this phase is to master the elementary techniques of the ship-to-shore movement, and to develop cooperation and mutual understanding among the component arms and services in the joint force.

c. This training includes exercises by embarked troops and naval forces in all phases of the ship-to-shore movement. It is progressive, beginning with exercises based on the individual attack transport and its embarked troops, and ending with a full-scale exercise of the transport division and its embarkation group.

d. During elementary ship-based training, the essential element of planning is the development of coordination between all staffs. The principal factors to be considered in planning elementary ship-based training are the availability of time, facilities, and training areas. The RCT commander and his BLT commanders prepare complete operation orders with annexes for all scheduled landing exercises. Upon completion of the elementary ship-based training phase, standing operating procedures are revised as necessary.

e. Combat loading of all units is done by preparing thorough loading plans and by conferences with naval commanders. Enough equipment and supplies are loaded to give realistic training.

f. After RCT units are embarked, shipboard emergency and general drills are conducted, followed by debarkation drills stressing the prompt formation below decks and the orderly movement of boat teams to assigned debarkation stations.

g. Upon arrival of the transports in the designated training area, training is decentralized to individual transports. Each transport and its embarked troops conduct the following training:

(1) Movement of boat teams to their assembly areas (compartments).

(2) Movement of boat teams to their assigned debarkation stations.
(3) Debarkation of boat teams.
(4) Formation of boat waves.
(5) Assembly at rendezvous area.
(6) Approach to line of departure.
(7) Crossing the line of departure.
(8) Transfer from landing craft to LVT's when necessary.
(9) Landing and debarkation at the beach.
(10) Re-embarkation.

h. Each BLT executes a minimum of three landings based on tactical exercises. One of these is a night landing. Supplies that can be reloaded in the allotted time are taken ashore. Casualties are simulated and evacuated to designated ships.

i. Immediately following each exercise a critique is conducted for all participating elements. TTU personnel and observers from higher and adjacent echelons are assigned to observe the exercise and to submit comments on errors noted in the application of principles and techniques.

j. At least one day is provided between landing exercises for critiques and for the revision of plans and orders for the exercise to follow.

k. During RCT landing exercises, all units of the embarkation group not included in the RCT participate in the landing exercises. The landing of these groups is coordinated by the division commander.

231. ADVANCE SHIP-BASED TRAINING

a. Advanced ship-based training is normally conducted immediately following elementary ship-based training. If practicable, it is carried out using the same ships and facilities.

b. The purpose of advanced ship-based training is to measure the success of preliminary training, to test the work of staffs, and to integrate the functions of all arms and services.

c. Advanced ship-board training is conducted by the landing force under the supervision of the amphibious training command. It consists of—

(1) Assembly of forces at bases or staging areas.
(2) Embarkation according to prearranged plan.
(3) Movement to training area, exercises at sea, shipboard drills, and training.
(4) Preliminary bombardment by air and naval units.
(5) Ship-to-shore exercise followed by critique.
(6) Landing and advance inland followed by critique.
(7) Re-embarkation and return to base.
(8) Critiques.

d. Detailed embarkation plans for amphibious exercises are prepared by all echelons of the landing force and coordinated with corresponding naval echelons. Realism is emphasized in all planning.

232. REHEARSALS

An amphibious rehearsal is an exercise that is executed according to the actual plans prepared for a specific combat mission. Its purpose is to insure familiarity with, and test the adequacy of, the details of the tactical and administrative plans; and to correct errors and inadequacies before the actual execution of the assigned mission. While the rehearsal logically follows the completion of the third phase of amphibious training, it is not considered a fourth phase of such training since rehearsals are conducted only in preparation for a specific mission.

CHAPTER 14

ARMORED INFANTRY

233. POSSIBLE AMPHIBIOUS ARMORED MISSIONS

a. The armored division, heavy in vehicular equipment, is not normally used in an amphibious assault. It may have a supporting role. Situations may arise in which an armored division would be extremely valuable in the early stages of operations ashore. In these situations, since port facilities will probably not be available, it may be necessary to plan for landing units of the division from landing ships and craft. Once ashore the tactical use of the armored division and its components are the same as for a normal land operation.

b. A combined arms team composed of a reinforced armored infantry battalion, less carriers, may be used to establish a beachhead similar to the BLT of an infantry division. Carriers are brought ashore as soon as the tactical situation permits.

c. In the enlargement of the beachhead, the armored infantry battalion is normally used as a reinforced battalion of a combat command. Carriers then accompany their units in the usual manner.

234. ORGANIZATION FOR LANDING

Even though the operational plan indicates that the armored infantry battalion will land after the beachhead is secure, there is always a possibility that

elements of the armored division may be called upon to fight before they can reorganize. The battalion commander anticipates this possibility by carefully organizing the battalion and its attachments into combined arms teams in accordance with the availability of landing craft and ships assigned for the movement.

235. PRINCIPLES DECIDING THE COMPOSITION OF COMBINED ARMS TEAMS

The mission, weather, terrain, type of expected resistance, and availability of landing craft and ships determine the composition of the combined arms teams. The following principles govern the use of such teams:

a. The tactical integrity of the tank platoon is maintained. When elements of a tank company are transported on separate ships, the company headquarters accompanies one of its tank platoons.

b. Though it is desirable to keep the armored infantry platoons intact, the characteristics of landing craft often require squad employment during the initial assault of the beach. In this event, platoons should reorganize as soon as practicable.

c. An engineer element accompanies the battalion in the assault landing. Vehicular maintenance personnel and their organic vehicles are assigned to ships according to the tactical use of the supported elements.

236. PREPARING FOR THE OPERATION

a. Training for an armored infantry battalion is similar to that given infantry and tank units before

embarkation. See chapter 13 for details of training.

b. Planning and embarkation procedures are the same for armored infantry as for other infantry units.

c. All vehicles to be landed from ship to beach are completely waterproofed before embarkation (par. 55).

d. Ships are combat loaded so that the loss of one vessel does not result in the loss of any complete combat or service element of the battalion.

237. ACTIVITIES DURING THE MOVEMENT TO OBJECTIVE

a. During the movement to the objective, officers and naval personnel brief the troops on plans, hydrographic and beach conditions, terrain ashore, and enemy positions. Special training may include manning and familiarization firing of naval antiaircraft guns. Troops practice assembly at stations for abandoning ship in case of emergency. They learn to organize into boat teams and to go by definite routes to their stations. Debarkation procedure is practiced to include assembling and inspection of boat teams, movement by designated routes to assigned debarkation stations, and the technique of loading.

b. Weapons and personal equipment are inspected periodically for proper maintenance. Maintenance of vehicle and mechanical equipment is continual and is supervised. The final checks on waterproofing are made immediately before landing.

238. DEBARKATION AND LANDING

Debarkation of elements of the reinforced armored infantry battalion, when it is a part of the assault echelon, is determined by the contemplated tactical use ashore.

239. REORGANIZATION

a. Elements of a reinforced armored infantry battalion in the assault echelon reorganize from boat teams to platoon and company units at the first opportunity. Accompanying vehicles are de-waterproofed as soon as possible.

b. Armored infantry units landed subsequent to the assault echelon move to designated assembly areas where reorganization and the de-waterproofing of vehicles are accomplished.

APPENDIX I

REFERENCES

SR 310–20 Series	Military Publications.
SR 320–5–1	Dictionary of United States Army Terms.
FM 3–5	Characteristics and Employment of Ground Chemical Munitions.
FM 3–6	Employment and Characteristics of Air Chemical Munitions.
FM 6–20	Tactics and Technique.
FM 6–101	Tactics and Technique Battalion and Battery, Motorized.
FM 7–20	Infantry Battalion.
FM 17–32	Tank Platoon and Tank Company.
FM 17–34	Amphibious Tank and Tractor Battalions.
FM 17–70	Signal Communication in the Armored Division.
FM 17–100	Armored Division and Combat Command.
FM 21–8	Military Training Aids.
FM 21–40	Defense Against Chemical Attack.
FM 31–35	Air-Ground Operations.
FM 31–50	Attack on a Fortified Position and Combat in Towns.

FM 101–5	Staff and Combat Orders.
TM 3–220	Decontamination.
TM 9–2853	Preparation of Ordnance Matériel for Deep Water Fording.
USF 6	Amphibious Warfare Instructions, United States Fleets.
USF 63	Amphibious Instructions, Landing Forces.
USF 66	Tactical and Operational Instructions, Amphibious Forces.

APPENDIX II

CHARACTERISTICS OF LANDING CRAFT AND SHIPS

1. LCC—LANDING CRAFT, CONTROL (fig. 55)

Operational use—as a lead-in navigational craft for landing craft (vehicles); to mark line of departure; for traffic control; for preliminary hydrographic surveys. Length, 56 feet; width, 14 feet 6 inches; draft, 4 feet; not intended to beach; maximum speed, 13½ knots; displacement, 30 tons; range, 500 miles at 10 knots; armament, 3 twin caliber .50 machine guns on ring mounts; ¼-inch armor on bridge and gun cockpits; powered by two 250-horse-

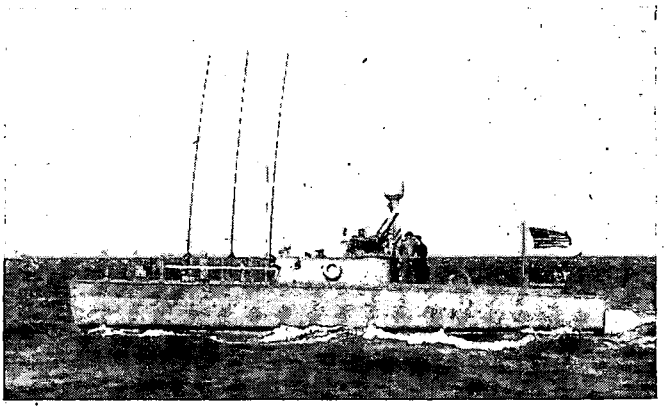


Figure 55. LCC—Landing craft, control.

power Diesel engines; steel hull; distinguished by its collapsible antenna and radar; usually carried on the decks of APA or AKA, and lowered by booms.

2. LCVP—LANDING CRAFT, VEHICLE, PERSONNEL (fig. 56)

Length, 36 feet; width, 11 feet; draft, 3 feet (light); displacement, 18,700 lbs; speed, 9 knots maximum; range, 105 miles; armament, two caliber

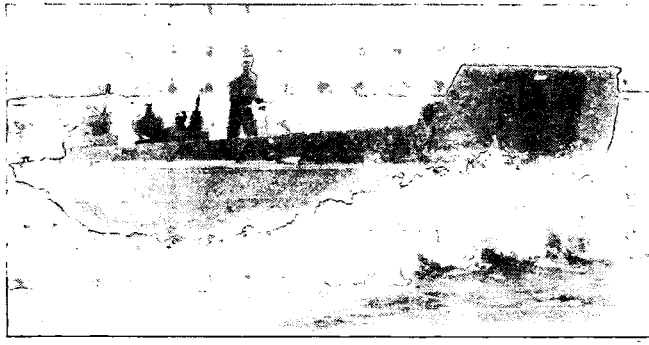


Figure 56. LCVP—Landing craft, vehicle, personnel.

.30 machine guns; capacity, 36 fully equipped troops, three tons of vehicles, or four tons of cargo; crew, three. It is not wide enough to carry a vehicle larger than a ¼-ton truck. These craft are taken to the target area on transports and other ships of the landing force.

3. LCM(6)—LANDING CRAFT, MECHANIZED (MARK 6) (figs. 57 and 58)

Length, 56 feet; width, 14 feet 1 inch; draft, 3 feet forward, 4 feet aft (light); speed, 9 knots; dis-

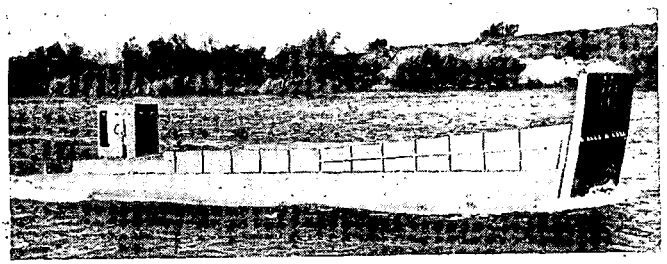


Figure 57. LCM(6)—Landing craft, mechanized (mark 6).

Figure 58. 105-mm howitzer and prime mover loaded in an LCM(3).

placement, 26 tons; range, 150 miles; armor, ¼-inch; armament, two caliber .50 machine guns; capacity, one M4 medium tank, 120 troops, or 68,000 pounds of cargo. The LCM has a bow ramp. When used with the LSD it is loaded with tanks or heavy artillery and floated into the docking space of the LSD for transportation to the anchorage off the assault beaches. The LCM lands tanks, vehicles, troops, and supplies. LCM's are taken to the forward area aboard assault cargo ships (AKA's), attack transports (APA's), cargo ships (AK's), transports (AP's), and LSD's. However, the LCM(6) is too long to be carried on AKA's and must be transported in sections.

4. LSU—LANDING SHIP, UTILITY

(fig. 59)

Length, 119 feet; width, 32 feet; draft, 3 feet 6 inches forward, 4 feet aft (loaded); displacement loaded, 309 tons; speed, 8 knots; range, 1200 miles; armament, two 20-mm guns; capacity, three M26 tanks, five M24 tanks, four M4 medium tanks, nine

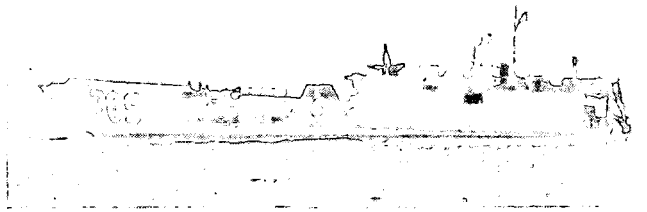


Figure 59. LSU—Landing ship, utility.

trucks, or 150 tons of cargo; no troop accommodations; crew, 13. The LSU is seaworthy but not suited for long ocean voyages. When the target area is a considerable distance from the advance base, LSU's are transported either by placing one on a launching cradle on the weather deck of an LST or by carrying three in the tank deck of an LSD. They can land tanks, vehicles, and supplies on the beaches. LSU's have been converted into rocket-craft for close shore bombardment.

5. LSM—LANDING SHIP, MEDIUM

(fig. 60)

Length, 203 feet; width, 34 feet; draft, 3 feet 5 inches forward, 7 feet 11 inches aft (landing with

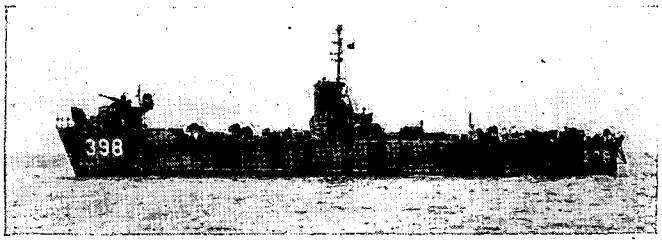


Figure 60. LSM—Landing ship, medium.

load not exceeding 165 tons); displacement, 1095 tons loaded; speed, 13 knots; range, 4900 miles; crew, 58; armament, 40-mm and 20-mm guns; capacity, five M26 tanks, six LVT's, ten trucks, or nine DUKW's; accommodations for 48 troops. The LSM is an ocean-going tank-landing ship similar to the LST. It has bow doors and a ramp, and an open tank deck. Under favorable beach conditions it can

unload tanks directly on the beach. LSM's can land tank platoons to support the assault companies of infantry on the beach. Ships of this type have been modified to fire rockets from offshore. The LSM(R) is a rocket ship built on the hull of an LSM. The LSM(R) is used to deliver a large volume of preparatory rocket fire on a landing beach.

6. LST—LANDING SHIP, TANK

(figs. 61 and 62)

a. The LST is actually an ocean-going tank-landing craft. It is designed to beach on a slope of 1: 50, and to land tanks and vehicles over a bow ramp.

b. The LST is 328 feet long and has a beam of 50 feet. It has a maximum total ocean-going displacement of approximately 4000 tons with a pay load of between 1600 and 1900 tons. Four gasoline motors furnish electric power and run pumps that can remove 500 tons of liquid ballast from the ballast tanks; this allows the bow of the ship to beach in three to four feet of water. In addition, these pumps are used to trim the ship. Because of the shallow draft, the danger of being torpedoed by a contact exploding torpedo is remote. The ship has a cruising radius of 12,000 miles at a cruising speed of nine knots when fully loaded. It is capable of a speed of 12 knots for a limited time. The ship is powered by two 900-horsepower Diesel engines that operate twin screws. In planning an operation involving this type ship, a speed of advance of not more than 7½ to 8 knots can be counted on. Armament includes 40-mm and 20-mm guns.

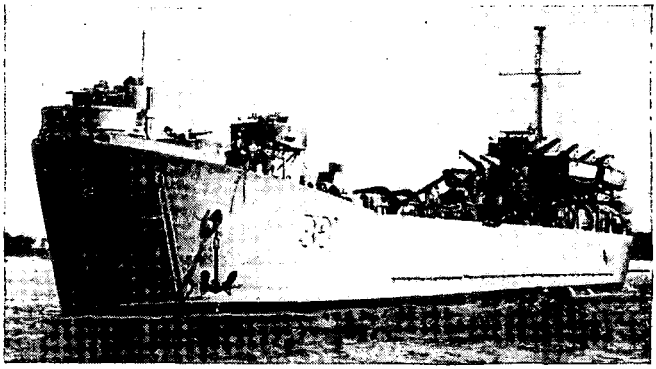


Figure 61. LST—Landing ship, tank.

c. The six-davit LST (mounting LCVP's) carries a Navy crew of 9 officers and 120 enlisted men. It has troop accommodations for 14 officers and 131 enlisted men of the Army.

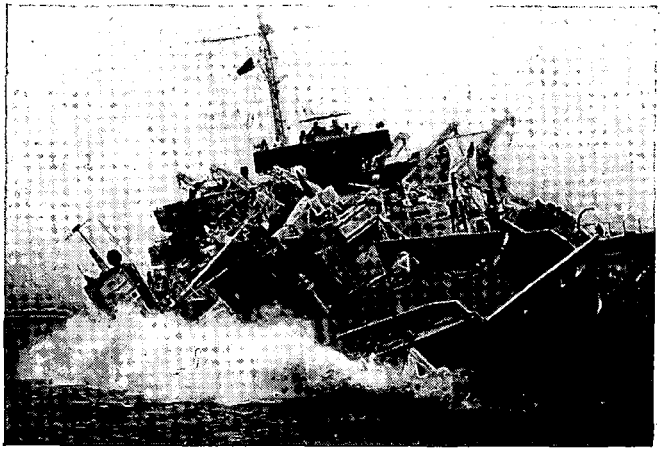


Figure 62. An LSU being launched from an LST.

d. The ship has two decks on which vehicles may be carried: the top or weather deck and the tank deck. Tanks or 10-ton wreckers cannot be loaded on the top deck. All vehicles placed on the top deck are loaded through the bow ramp onto the tank deck, thence to the top deck by the ramp (in some models there is an elevator instead of a ramp). A cargo hatch aft also services the top deck. For inaccessible landings, sectional pontoons to make up floating causeways can be carried on each side amidship.

e. The tank deck is 228 feet long and 30 feet wide; it is designed for a concentrated load of heavy tanks. The limiting height from the deck to the underside of the lights is 11 feet 3 inches. The Diesel oil or ballast tanks and the engine rooms are directly under and to the rear of the tank deck. Battery-charging equipment, with outlets for charging vehicular batteries, is supplied on the tank deck.

f. The total load for the top deck is 400 tons. Because of the limited capacity of the ramp or elevator, loads cannot exceed 10 tons gross weight. Because of the LST's construction, the top deck cannot carry loads concentrated in a small space. For example, an LVT carried on the top deck is secured on planking spanning the hull frames. Thus secured, nine LVT's can be carried.

g. On LST's equipped with ramps from the tank deck to the top deck, it is possible to load a few vehicles on the top deck, then raise the ramp and load vehicles on the tank deck while those on the top deck are maneuvering into position. This process can be repeated until the tank deck is about three-fourths filled, after which it is impossible to lower the ramp,

Vehicles are backed onto the ship in inverse order of landing priority. It is advisable when loading from land to close the doors to within a short distance of the ramp. This prevents vehicles from turning over in case they run off the ramp. When loading from water, open the doors to the fullest extent. It is advisable, when loading the tank deck, to place a number of heavy vehicles on the sides of the deck, and put half-tracks and lighter vehicles in the middle lane. The tank deck has an efficient ventilating-system, which is kept running during loading or unloading and at other times when vehicle motors are in operation.

h. LSU's are often carried to the target area mounted on side-launching cradles on the weather deck of the LST. Miscellaneous conversions of the LST include flight decks for launching liaison planes, ambulance or hospital ships, aircraft repair ships, salvage craft tenders, and general stores-issue ships.

7. LSD—LANDING SHIP, DOCK.

(fig. 63)

Length, 457 feet 9 inches; width, 72 feet; draft, 10 feet forward, 15 feet aft (light); displacement,

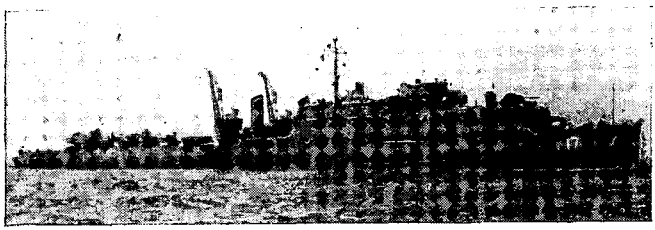


Figure 63. LSD—Landing ship, dock.

8000 tons seagoing; speed, 15 knots; range, 8000 miles; crew, 302 officers and men; armament, one 5-inch gun in addition to 40-mm and 20-mm guns. The LSD is an adaptation of the floating dry dock and is designed to carry LCM's or LSU's loaded with tanks or vehicles in its hold. The hold is an open well deck and is also referred to as the tank deck. During loading or unloading, the hold is flooded to a depth of about eight feet; the gate in the rear is opened and the LCM's or LSU's are floated in or out. The ship is not designed to unload tanks or vehicles directly onto the beach. The tank deck or hold carries three LSU's, each loaded with three M26 tanks; or 14 LCM's each loaded with one M4 medium tank; or 41 LVT's. Temporary decks can be constructed, which enable the LSD to carry up to 94 LVT's or 108 DUKW's. Land tanks cannot be loaded on these temporary decks. The LSD is used by the Navy in the area offshore from the assault beaches as a floating dry dock to repair ships and craft such as LSM's, LCM's, or LSU's. It has accommodations for 22 troop officers and 310 men (fig. 64).

8. LSV—LANDING SHIP, VEHICLE.

(fig. 65)

The LSV is a converted transport for carrying landing vehicles and troops. It has a stern ramp over which LVT's and DUKW's are launched into the water; the ship cannot land vehicles directly onto the beach. The LSV is 451 feet long and 60 feet wide, with a loaded displacement of 8000 tons, and has a speed of 19.5 knots. It can carry 21

LVT's and 800 troops, or 31 DUKW's and 800 troops, or 1800 troops without vehicles; it has 14 LCVP's on deck and davits. Its armament includes 5-inch, 40-mm, and 20-mm guns. It has a crew of 481 officers and men. Characteristics vary slightly with the individual ship.

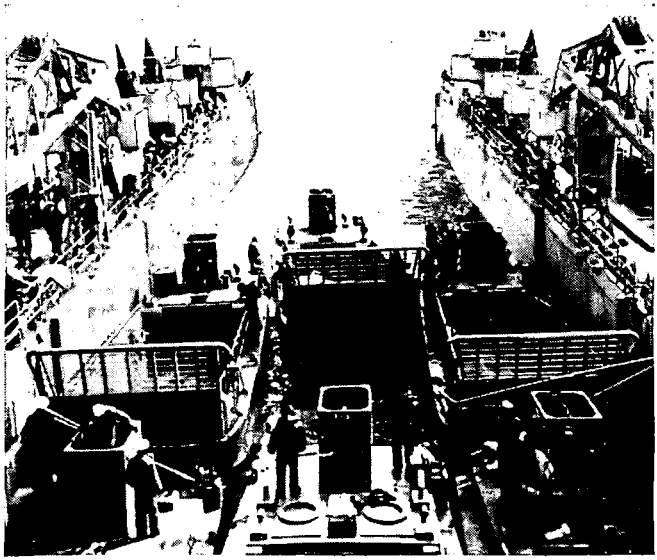


Figure 64. Launching LCM(3)s from the well deck of an LSD.

9. RHINO FERRY.

(fig. 66)

The Rhino ferry consists of U. S. NL pontoons joined to form a ferry six pontoons wide and 30 pontoons long (approximately 30 feet by 174 feet). It is in effect an oversize pontoon barge. Two large

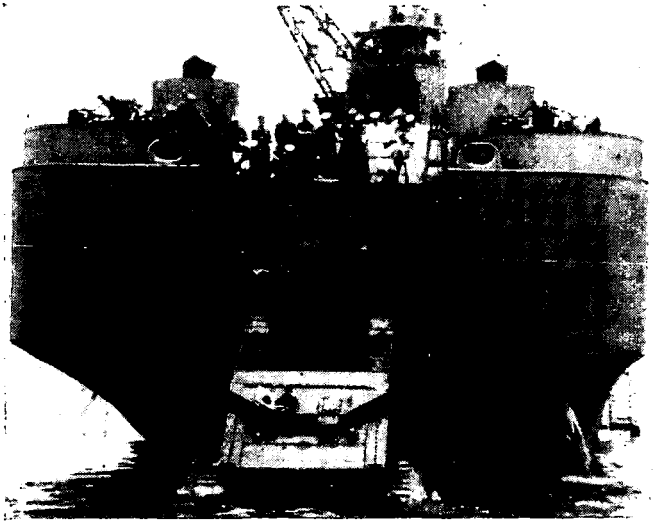


Figure 65. LSV—Landing ship, vehicle.

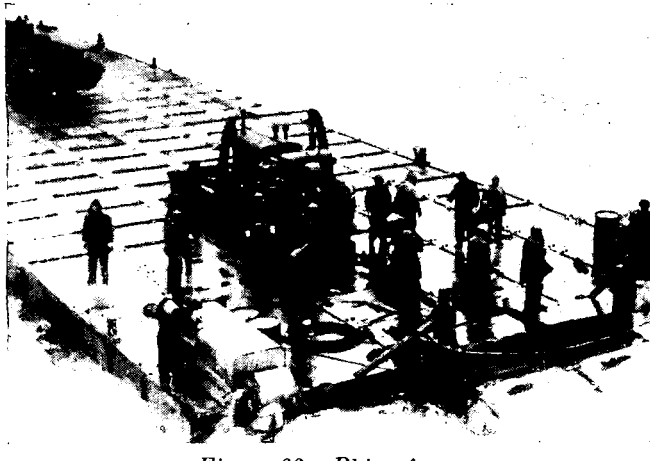


Figure 66. Rhino ferry.

outboard motors furnish power. The ferry has a bow ramp. Tanks and other vehicles can load on Rhino ferries from LST's; the ferries then proceed to shore and unload the vehicles directly on the beach.

APPENDIX III

A TYPICAL BLT TASK ORGANIZATION

Co I

(Capt J. A. Brown, Comd)
Co I, 1st Inf
Det Med Co, 1st Inf
Sec MG Plat, Co M, 1st Inf
Intel Squad, Hq Co 3d Bn
Det Comm Plat, Hq Co 3d Bn
F O Team, 3d FA Bn
F O Team, Mort Co, 1st Inf

BLT Trps

Hq Co, 3d Bn, 1st Inf (—)
3d Plat, Med Co, 1st Inf (—)
Coll Det, Coll Co, 1st Med Bn
Det Comm Plat, Hq Co, 1st Inf
Det Svc Co, 1st Inf
Naval Gunfire Ln Party
TACP No 3
3d Plat, Regt Tk Co, 1st Inf
3d Plat, Co A, 1st Eng C Bn
Co A, 22d Amph Tk Bn
Det, Shore Party

Co K

(Capt S. R. Jacks, Comd)
Co I, 1st Inf

Det Med Co, 1st Inf
Sec MG Plat, Co M, 1st Inf
Intel Squad, Hq Co 3d Bn
Det Comm Plat, Hq Co 3d Bn
F O Team, 3d FA Bn
F O Team, Mort Co, 1st Inf

Co L

(Capt A. J. White, Comd)
Co L, 1st Inf
Det Med Co, 1st Inf
Det Comm Plat, Hq Co 3d Bn
F O Team, 3d FA Bn

Co M

(Capt T. C. Lee, Comd)
Co M, 1st Inf (—)
3d Plat, Mort Co, 1st Inf

APPENDIX IV

TRAINING PROGRAMS

1. GENERAL

Included in this appendix are training programs that may be used in training personnel, staffs, and BLT units undergoing training for an amphibious operation. Most of the included training is normally given at an amphibious training center by TTU personnel under the direction of the amphibious training command. Certain phases of the training may be conducted at or near the home station by TTU personnel from an amphibious training center.

2. AMPHIBIOUS INDOCTRINATION SCHOOL

Attendance—BLT staff and special staff, maximum number of officers that can be spared from current training, plus selected key noncommissioned officers.

Duration—30 hours.

Place—At home station or at an amphibious training center.

Purpose—To present a general picture of amphibious operations; for example, the "why" of this training. To outline the various amphibious techniques to be covered during the training period and to describe the tools used in doing the job and how they are used.

Scope.

Subjects	*Training hours*
Principles of the amphibious operation	1
Historical background of the amphibious operation	1
Naval customs and terms	½
Amphibious ship types	2½
Naval task organization for amphibious operation	1
Boat team organization (demonstration)	1
Boat team commander's duties	½
BLT organization	1
Ship-to-shore movement, tactical	1
Debarkation techniques	½
Ship-to-shore movement, logistical	1
Combat intelligence, general	1
Troop task organization for amphibious operations	1
Embarkation, billeting, debarkation schedule, and troop life aboard ship	1
Boat drill, LVT and LVCP	1
Amphibious communication	1
Medical problems in amphibious operations	1
Close support in the amphibious operation	2
Dry net practice	1
Underwater demolition teams	1
BLT assault landing	1
Staff in action	2
Wet net practice and individual landing	2
Combat loading and functions of the unit loading officer	1
Shore party and naval beach group	1
Amphibious logistics	1
Squad, platoon, and company in an amphibious landing	1
Totals hours	30

3. BLT STAFF SCHOOL

Attendance—BLT staff and special staff.

Duration—60 hours.

Place—At home station or at an amphibious training center.

Purpose—To teach BLT staff and special staff officers how to prepare complete amphibious operation plans on a BLT level. To familiarize BLT staffs with RCT and Division operations plans and annexes.

Scope.

Subjects	*Training hours*
Orientation for amphibious staff planning	1
Steps in amphibious planning	2
Orientation on division and RCT level planning	3
Orientation on the BLT operation order and annexes	3
Preparation of BLT operation order	3
Preparation of boat assignment tables, debarkation schedule, approach schedule, and landing diagram	8
Preparation of intelligence, communication, and medical annexes	4
Orientation on these plans	12
Naval gunfire	
Artillery	
Air support	
Shore party	
Engineer	
Loading	
Embarkation	
Preparation of a complete BLT operation order and administrative order to include all annexes	24
Total hours	60

4. TROOP ORIENTATION AND INDIVIDUAL TRAINING

Attendance—All BLT personnel (less individuals attending specialist schools).

Duration—48 hours.

Place—Home station or amphibious training center.

Purpose—To present a general orientation of amphibious operations. To prepare each BLT member for his role as an individual in amphibious operations.

Scope.

Subjects	*Training hours*
Historical background of amphibious operations	1
Naval customs and terms	1
Identification of naval landing craft and naval troop carriers	1
Adjustment and care of individual equipment (demonstration and practical work)	2
Net scaling technique (demonstration and practical work)	6
Lashing and lowering of equipment (demonstration and practical work)	2
Organization of boat teams (demonstration and practical work)	2
Boat discipline	1
Passage of beach obstacles (demonstration)	1
Boat drill (mock-ups) and passage of beach obstacles	4
Embarkation, billeting, and troop life aboard ship	3
Landing craft and vehicles, LCVP, LCR, LCM, LSU, DUKW, LVT(A), LVT, (models and films, film slides, or charts)	2
Identification of aircraft	1
Artillery, naval gunfire, and air support	1
Life jackets, life belts, and abandon ship instructions	1

Subjects	Training hours
Squad, platoon, and company in an amphibious landing	6
Ship-to-shore movement, tactical	2
BLT organization	1
BLT assault landing	1
Combat swimming (if practicable)	9
Total hours	48

5. SMALL UNIT TRAINING

Attendance—All BLT personnel.

Duration—64 hours.

Place—Home station or amphibious training center.

Purpose—To train all BLT personnel in the principles of amphibious operations as applicable to small units. To continue basic training of the individual as part of an amphibious team.

Scope.

Subjects	Training hours
Organization of boat team and duties of the boat team commander and his assistant	1
Boat drills—	
LCVP	2
LVT	2
Dry net practice	2
Employment of LCR	1
Medical services in amphibious operations	1
Wet net practice (to include 3 hours at night)	9
The shore party and naval beach group	1
Reduction of beach defenses	1
Amphibious reconnaissance	1
Amphibious operations (training films)	2
Identification of naval vessels	1
Identification of naval aircraft (training films)	1

Subjects	Training hours
Identification of naval landing craft and naval troop carriers (review)	1
Individual landings—	
LCVP (to include 3 hours at night)	9
LVT	2
Transfer operations between LCVP and LVT	4
Preparation for company landings	4
Company landings—	
LCVP	4
LVT	4
Review troop life aboard ship, shipboard drills, and naval customs	1
Air support	1
Naval gunfire support	1
Field artillery support	1
Combat loading and function of unit loading officer	1
Amphibious communication	1
Amphibious logistics	1
Intelligence procedure in amphibions operations	1
Underwater demolition teams	1
Orientation on BLT and RCT landing exercises	2
Total hours	64

6. ELEMENTARY SHIPBOARD TRAINING

Attendance—All BLT personnel.

Duration—24 hours.

Place—As directed by Amphibious Training Command.

Purpose—To practice embarkation, billeting, debarkation, and ship-to-shore movement by BLT.

Scope.

Subjects	Training hours
First day—Embarkation, billeting, and debarkation drills aboard assault transport (APA)	8

Subjects	Training hours
Second day—Elementary landing exercises. Debarkation of the BLT and the execution of ship-to-shore movement to the rendezvous area, followed by re-embarkation and critique	8
Third day—Elementary landing exercises by the BLT. Execution of the entire ship-to-shore movement, followed by re-embarkation and critique	8
Total hours	24

7. ADVANCED SHIPBOARD TRAINING

Attendance—All BLT personnel.

Duration—40 hours.

Place—As directed by Amphibious Training Command.

Purpose—To execute all phases of a typical amphibious operation under simulated combat conditions.

Scope.

Subjects	Training hours
First day	8
Embark troops	
Load dummy cargo	
Practice shipboard drills, including movement to debarkation stations by day and night	
Second day	8
Conduct landing exercise (LEX I)	
Reload equipment	
Third day:	
Critique landing exercise (LEX I)	8
Fourth day:	
Conduct landing exercise (LEX II)	8
Fifth day:	
Critique (LEX II)	8
Total hours	40

8. SPECIALIST SCHOOLS

Specialist schools are held during the initial stages of shore-based training to make sure of an adequate and uniform standard of training and performance in certain special amphibious techniques. Locations of schools are announced by the Amphibious Training Command.

a. Transport Loading School.

(1) *Attendance.* Each BLT sends a minimum of two officers and three enlisted men.

(2) *Purpose.* To train designated personnel of the BLT in the principles of combat loading and unloading.

b. Naval Gunfire School.

(1) *Attendance.* Division naval gunfire liaison officers, selected NCOs, and artillery forward observers.

(2) *Purpose.*

(*a*) To train forward observer parties in the principles and techniques of using naval gunfire in an amphibious operation.

(*b*) To show the capabilities and limitations of supporting arms in amphibious operations.

(*c*) To give specialized training to personnel of forward observer parties.

c. Amphibious Communication School.

(1) *Attendance.* Communication officers and a minimum of three noncommissioned officers from each communication platoon.

(2) *Purpose.* To train a nucleus of communication personnel in those phases of

communication peculiar to amphibious operations, including techniques used in waterproofing signal equipment.

d. Amphibious Intelligence School.

(1) *Attendance.* All intelligence officers.

(2) *Purpose.*

(*a*) To teach commanders and their staffs the techniques of amphibious intelligence planning.

(*b*) To give specialized training in amphibious intelligence, including subjects like amphibious reconnaissance and obtaining hydrographic information from aerial photos.

e. Medical Field Service School.

(1) *Attendance.* Medical officers and key medical technicians.

(2) *Purpose.* To familiarize medical officers and key technicians with the duties and responsibilities of medical units in landing operations, and to prepare them to give medical support to the landing elements.

f. Waterproofing School.

(1) *Attendance.* Motor officers and key maintenance noncommissioned officers.

(2) *Purpose.* To train selected personnel in the latest techniques of waterproofing and de-waterproofing wheeled and tracked vehicles.

APPENDIX V

THE WEARING OF INDIVIDUAL EQUIPMENT

1. GENERAL

To reduce hazards to personnel debarking over the side of a ship, particularly in the dark or in rough water, individual equipment is worn so that it permits free movement down the debarkation nets and rapid jettisoning, if necessary.

2. TECHNIQUE

a. The *pneumatic life belt* is worn under all other equipment and well up on the chest, buckle and capsules on the right.

b. The *gas mask* is slung over the left shoulder (under the pack) and well back on the left hip. The body-strap is left unhooked and secured to the cartridge belt.

c. The *pack* is slung in the normal manner. The cartridge belt is not fastened.

d. The *canteen* is carried on the left hip.

e. The *shoulder weapon* is slung to prevent it from slipping off the shoulder or flopping at the hip and fouling the net during ascent or descent.

(1) When the bayonet is carried on the pack, the shoulder weapon is slung over the left shoulder, muzzle up and sling to the front. The canteen is placed between the stock and the lower part of the sling. The upper

part of the sling is hooked over the bayonet on the combat pack. (The sling is adjusted to proper length to hold the weapon securely.)

(2) When the bayonet is not on the pack, the shoulder weapon is slung on the left shoulder, muzzle up and sling to the front. The canteen is placed between the stock and sling. The barrel is forced around to the right side of the combat pack. (The sling is adjusted to hold the weapon securely to the man's back.)

f. The *helmet chin strap* is loosened but buckled to prevent the helmet from falling off while descending the net.

g. Gloves are not worn while climbing the net.

h. For the wearing of individual equipment, see figures 67, 68, and 69.

Figure 67. Front view—wearing of individual equipment.

Figure 68. Left side view—wearing of individual equipment.

Figure 69. Rear view—wearing of individual equipment.

APPENDIX VI

LASHING AND LOWERING EQUIPMENT

1. GENERAL

During the debarkation phase, demolitions, communication equipment, and crew-served weapons and ammunition are divided into loads to make the loading of landing craft easier.

2. TYPE LOADS

In preparation for loading, crew-served weapons are divided into the following loads—

a. Heavy Machine Gun, cal .30—

(1) Tripod and cradle.
(2) Gun, spare barrel, cleaning rod, and aiming stakes.
(3) Two ammunition chests, one water chest, one spare parts chest.
(4) Additional ammunition chests.

b. Light Machine Gun, cal .30—

(1) Tripod.
(2) Gun, spare barrel, and cleaning rod.
(3) Three ammunition chests and one spare parts chest.
(4) Additional ammunition chests.

c. 81-mm Mortar—

(1) Instrument bag.
(2) Tube.
(3) Bipod.

(4) Base plate.
(5) Ammunition.

d. 60-mm Mortar—

(1) Instrument bag.
(2) Tube, bipod, and base plate.
(3) Ammunition.

e. 57-mm Rifle—

(1) Rifle.
(2) Tripod.
(3) Two carrying cases.
(4) Ammunition.

3. LASHING EQUIPMENT

a. If nets or equipment bags are not used, the BLT commander provides one lashing line for each piece or group of equipment (fig. 70) to be lowered by hand. When nets or equipment bags are used, a lashing is provided to tie the top of each net or bag. This lashing line has a minimum length of 8 feet with an eye splice at either end. The line is one-half inch in diameter. Equipment to be lowered is lashed with the lashing line in the troop assembly area before arrival at the debarkation station.

b. The BLT commander also provides—

(1) Two guide lines for each debarkation net used. A guide line is 50 feet long and one-quarter of an inch in diameter with a steel hook spliced in one end. The spare between barb and shank of the hook is enough to take a line one-half inch in diameter.

(2) Two lowering lines for lowering equipment into landing craft for each debarkation net. (The Navy may furnish lowering lines for

① Tripod lashed with a lashing line. (Note clove-hitch at heavy end and half hitches toward lighter end, and eyes on both ends of lashing line.)
② Lowering line. (Note hook through eye of lashing line at light end of equipment. Lowering line is coiled to prevent fouling.)
③ Guide line. (Note hook through eye of lashing line at heavy end of equipment.)
④ Machine gun cal .30 M1919A4 lashed for lowering. (Note method of lashing.)
⑤ 60-mm mortar ready for lowering.
⑥ Ammunition boxes lashed for lowering.

Figure 70. Lashing and lowering lines.

each debarkation station during actual debarkation from the transport.) A lowering line is 50 feet long and three-quarters of an inch in diameter. Each line has a steel hook spliced in one end with enough space between barb and shank to take a line one-half inch in diameter.

c. The lashing line is tied to the heavy end of the equipment with a clove hitch, with half hitches taken toward the lighter end. The lashing line is se-

cured so that both eyes at the ends ride free, one at the lighter end and one at the heavier end.

4. LOWERING EQUIPMENT

a. The guide line is hooked in the eye at the heavy end of the equipment and the lowering line is hooked in the eye at the lighter end.

b. When troops and equipment are debarked at the same time, the equipment is lowered at the sides of the net.

c. Two loaders on each side of the debarkation station lower the equipment to the two loaders on each side of the net in the landing craft. The assistant boat team commander supervises the stowing of equipment in the landing craft.

d. As equipment is lowered, the loaders in the landing craft take hold of the guide line and keep it taut, guiding the piece of equipment into the boat. As soon as the piece of equipment is in the boat the hooks of the lowering line and the guide line are disengaged from the lashing line and engaged with each other. The loaders at the debarkation station pull the joined lines to the deck of the ship for further use.

e. When all of a boat team's equipment is lowered, the lowering and the guide lines are drawn up and stowed at the debarkation station for use by succeeding boat teams.

APPENDIX VII

NET SCALING

1. GENERAL

Net scaling practice cannot be overemphasized. The men are drilled and redrilled so that there is no hesitation during their movement from the debarkation station into landing craft. Practice starts without individual equipment, and builds up to descents in darkness with full equipment.

2. TECHNIQUE

a. Each man goes over the rail of the ship with his left leg first. While descending he uses his hands on the outside ropes of a set of three vertical ropes, and his feet on the strands adjacent to the center rope (fig. 71).

b. Since long steps slow the progress of descent (when the feet are too far apart, the man has difficulty removing his feet from the squares being used as steps) two square steps are used.

c. During the descent the men look up—not down. Under no circumstances are the men allowed to watch their feet while descending. As each man reaches the bottom of the net, he steps into the landing craft, facing its bow.

d. The climbing net is not a single file ladder; it is used to move groups of men simultaneously from the ship to small boats. Usually the net is wide

enough to accommodate 4 to 6 men at a time (two or three pairs of men abreast).

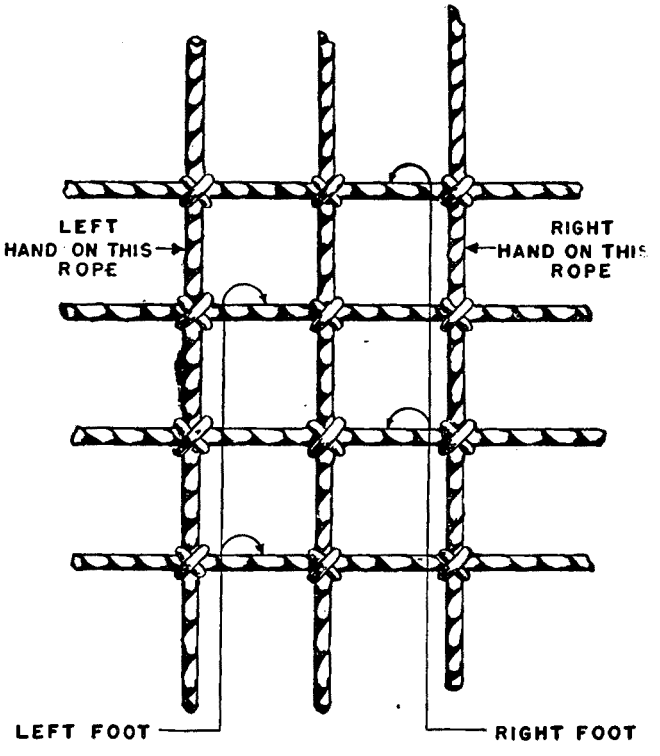


Figure 71. Net scaling technique.

APPENDIX VIII

TRAINING AIDS

1. SHORE-BASED

Training aids of simple design can be easily constructed by the using unit, especially for shore-based training. Some are—

a. Charts and slides to illustrate tables and diagrams; for example, boat assignment tables; debarkation schedule, approach schedule, and landing diagram; sea and landing areas.

b. Training films and film strips that show all phases of amphibious operations are available in film libraries. These films and strips can be used for indoctrination and for showing shipboard routine, approved embarkation techniques, ship-to-shore movement, and the beach assault.

c. Models (fig. 72) of landing ships, landing craft, landing vehicles, assault transports, and aircraft.

d. Sand tables and *terrain devices* to show enemy beach defensive positions.

e. Debarkation platforms (*ship side mock-ups*) that may be constructed in the home station area and are available at amphibious training centers (fig. 73). Cargo nets are hung from the platform to simulate debarkation stations on a transport. Troops are trained on these in the proper techniques of using cargo nets for debarking and for lowering equipment. At a beach training area or amphibious training center, debarkation platforms are constructed on

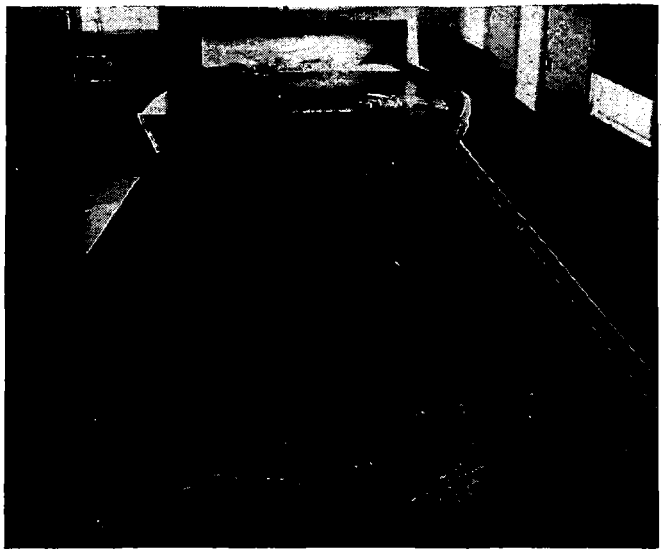


Figure 72. Mock-up for illustrating phases of the ship-to-shore movement.

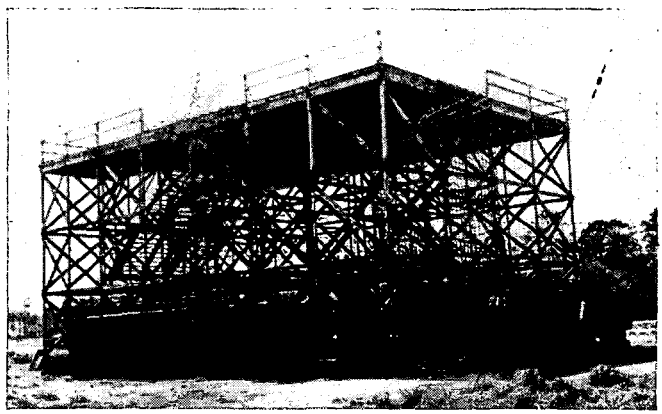


Figure 73. A debarkation training platform.

docks or piers so that landing craft and vehicles can be brought alongside.

f. Mock-ups of landing craft and vehicles that can be constructed at home station by using engineer tape or logs. On these, the troops are trained in the correct positioning of personnel and equipment in landing craft, and in the technique of debarking on a simulated beach. It is desirable to move LVT's and DUKW's to the home station if these items of equipment are available.

2. SHIP-BASED

These aids are suitable for use aboard ship—

a. Aerial photographs, maps, and relief maps of such size and number that they may be mounted in parts of the ship where they can be studied by all embarked troops. *Relief maps* and *terrain devices* are particularly valuable because they present a three-dimensional view of the objective. All such aids show beaches, boundaries, zones of action, and the general BLT scheme of maneuver.

b. Deck maps consisting of colored paintings of the landing beaches at the objective and the terrain immediately inland present a highly graphic and easily accessible training aid for all personnel.

c. Public address systems are desirable aids to instruction because of the noise aboard ship. Troop units provide their own public address systems or secure permission to use the portable public address system usually carried aboard transports.

APPENDIX IX

TERMS PECULIAR TO AMPHIBIOUS OPERATIONS

Advanced base—A general term designating a base located in or near forward areas outside the continental United States, the primary mission of which is to support operations of the Armed Forces.

AGC—The navy symbol for an amphibious flagship (headquarters ship) of the amphibious force commander, from which naval, landing force, and air commanders exercise control of a landing operation.

AH—The navy symbol for a hospital ship.

AK—The navy symbol for a cargo ship.

AKA—The navy symbol for a cargo ship, attack; a vessel capable of combat unit loading.

Amphibious assault—That part of an amphibious operation starting with the arrival of the attack force in the landing area, and terminating when the assault troops have established a beachhead ashore.

Amphibious forces—1. A general term used to describe the ground, sea, and air forces equipped and trained for amphibious operations. 2. Permanent naval organizations established for planning, training, and preparing for and conducting landing operations.

Amphibious vehicle—A wheel or track-laying vehicle capable of operating on both land and water. See Amtrac, Amtank, and DUKW.

Amtank—An amphibious tank capable of operating both on land and in water.

Amtrac—An amphibious full-track vehicle capable of operating both on land and in water; LVT, Alligator.

AP—The navy symbol for a troop transport.

APA—The navy symbol for an attack transport capable of combat unit loading and of transporting an assault battalion landing team.

APD—The navy symbol for a destroyer-type high-speed transport.

Assault craft (boat)—A landing craft or vehicle designed for landing assault troops and matériel on an enemy beach.

Assault echelon—That part of an attack force which arrives in the landing area with the initial assault troops.

Assault lift—The total capacity of assault-type shipping used in an amphibious operation expressed in terms of personnel, vehicles, and measurement (or weight) tons of supplies. Also called amphibious lift.

Assault waves—The leading boat waves in the approach to an enemy beach.

Attack force—A subdivision of a joint expeditionary force consisting of assault shipping with embarked troops and supporting naval and air force units, operating to establish a landing force on shore and support its operations thereafter. Sometimes called the joint attack force.

Attack transport—A naval ship designed for combat loading a battalion landing team with its essential combat equipment and supplies, and having the facilities, including landing craft, for transporting them to the beach.

Base—A locality from which operations are projected or supported.

Base development—The setting up of facilities (the nature and extent of which are dictated by the mission) for the primary purpose of supporting the operations of air, sea, and land forces. Such facilities range from a lone radio or radar station to a large base with complete ship-repair facilities for the navy; aircraft repair, maintenance, and supply installations for the air force units; and cantonment and supply facilities for training and staging several divisions of army troops.

Battalion landing team (BLT)—An infantry battalion specially reinforced by necessary combat and service elements; the basic unit for planning an assault landing. A battalion landing team is normally embarked aboard one attack transport or several landing ships.

BB—The navy symbol for battleship.

Beach—Shore line of a landing area assigned for the assault to one regimental combat team. Each regimental beach is given a color designation, and subdivisions are numbered from left to right as you face the beach from the sea.

Beach dump—An area adjacent to a beach utilized by a shore party for the temporary storage of supplies.

Beach exit—A route for inland movement of personnel and matériel from a landing beach; includes entrances to the beach for returning vehicles.

Beachhead—A designated area on a hostile shore which, when seized and held, insures the continuous landing of troops and matériel, and provides maneuver space requisite for projected operations ashore.

Beachhead line (*BHL*)—An objective for fixing the limits of a beachhead; a tentative main line of resistance based, if practicable, on terrain features which can be defended against enemy counterattack prior to advance out of the beachhead.

Beach marker—A sign or device used to identify a beach, or activities thereon, for incoming waterborne traffic. Markers may be panels, lights, buoys, or electronic devices.

Beachmaster—Naval officer in command of the naval platoon of the shore party.

Beach group—Naval platoon of the shore party which provides beaching control of craft and landing ships, regulates water traffic near the beach, surveys and marks channels and obstructions near the beach, salvages and repairs landing craft and assists in the evacuation of wounded from the beach.

Beach reserves—See *Reserve supplies.*

Beach support area—The beach area behind a landing force or its elements, established and operated by shore party units, which contains facilities for unloading troops and matériel, the supply and maintenance of the troops ashore, and the evacuation of wounded, prisoners, and other personnel and matériel.

Billet—An assignment of quarters and duties aboard a naval ship.

Boat—Navy term used to describe any small craft capable of being carried aboard a ship.

Boat assembly area—A water area adjacent to a ship (or elsewhere) in which boats assemble prior to, or after, ferrying troops and matériel ashore.

Boat assignment table—A table showing the assignment of all personnel and matériel to boats for the ship-to-shore movement.

Boat flotilla—A landing craft organization of two or more boat groups.

Boat group—Landing craft organization for landing a battalion landing team. It consists of all landing craft assigned or attached to a transport or landing ships to ferry the BLT ashore.

Boat pool—Additional boats available to transports to aid or replace boats which become inoperative prior to or during an amphibious operation.

Boat rendezvous area—See *Rendezvous area.*

Boat space—The space and weight factor used to determine the capacity of landing craft. It is based on the requirements of one man with his individual equipment. He is assumed to weigh 224 pounds and occupy 13.5 cubic feet of space.

Boat team—A subordinate unit of the landing team, constituted to function from the predebarkation phase of the landing until normal unit organization has been reestablished ashore. It is the personnel, with their equipment, loaded in one landing boat or amphibious vehicle charged with the performance of a task after landing.

Boat Wave—The landing craft (vehicles) within a boat group which are scheduled to land simultaneously.

Brodie launching device—An overhead landing wire, erected ashore or aboard ship, designed for launching and recovering aircraft specially equipped therefor.

CA—Navy symbol for heavy cruiser.

Call fire—Naval gunfire delivered on a specific target in response to a request from the supported unit.

Cargo and loading analysis—A form prepared from the consolidated unit personnel and tonnage table of a landing force element listing all cargo by organization, number of containers, type of equipment or supplies, weight, cubic measure, and where stowed. Also called a cargo list.

Cargo ship, attack—See *AKA*.

CL—Navy symbol for light cruiser.

Close covering group—A task designation for a group of naval vessels formed to protect ships and shore installations in the objective area against enemy surface attack.

Close support fire—Fire furnished in support of units ashore. It is placed on enemy troops, weapons, or positions which, because of their proximity, present the most immediate and serious threat to the supported units. Close support vessels may be light cruisers, destroyers, gunboats, LSM(R)'s LVT(A)'s, or other support landing craft.

Combat loading—The loading of assault troop units with their essential combat equipment, vehicles, and supplies in the same vessel, and in a manner

permitting immediate and rapid debarkation in a desired priority for the landing attack.

Combat team, regimental—See *RCT*.

Combined force—A military force composed of component units of two or more allied nations.

Combined operation—An operation conducted by forces of two or more allied nations acting together for the accomplishment of a single mission.

Comlanfor—Commander, landing force; commander of the task organization of ground troops equipped and trained to carry out an amphibious assault landing.

Commercial loading—The loading of troops and equipment and supplies in a vessel for the maximum utilization of personnel and cargo space.

COMNAVFOR—Commander, naval force.

COMTRANSDIV—Commander, transport division.

COMTRANSGROUP—Commander, transport group.

COMTRANSRON—Commander, transport squadron.

Condition 1A—Condition "One ABLE," that condition of battle readiness on vessels carrying troops or matériel for an amphibious landing when all stations are fully manned for debarkation.

Control group—A naval task organization consisting of personnel, vessels, craft, boats, and the necessary communication facilities to control the ship-to-shore movement.

Control officer—A naval officer, designated by the attack force commander, charged with over-all supervision of the ship-to-shore movement.

Control vessel—A vessel, craft, or boat designated to guide or control the movement of water-borne traffic to and from the beach. See primary control vessel, secondary control vessel, and special control vessel.

Convoy loading—The loading of troops, equipment, and supplies on vessels in the same convoy but not neccssarily on the same ship.

CV—Navy classification symbol for aircraft carrier.

CVE—Navy classification symbol for escort aircraft carrier (Merchant ship hull).

CVL—Navy symbol for a light aircraft carrier built on a light cruiser hull.

Davit loading—See *Rail loading.*

DCP—DUKW control point—A point located on or near beach exits to control the shuttle movement of amphibious trucks between ships and transfer points on shore.

DD—Navy symbol for destroyer.

D-day—A term used to designate the unnamed day on which an initial assault landing is to be made.

DE—Navy symbol for destroyer escort.

Deadweight ton—See *Tonnage.*

Debarkation—The unloading of troops, equipment, vehicles, and supplies from a ship.

Debarkation net—A net ladder by means of which troops debark or embark over the side of a ship.

Debarkation schedule—A form prepared by the BLT showing the boat team number, its debarkation station, the type of craft in which the boat team embarks, and the time it reports to stations for debarkation.

Debarkation station—A location definitely established at the rail of a ship where troops and matériel load into boats for movement ashore. There are usually four or more such stations on each side of an APA.

Deck loading—See *Rail loading.*

Deep support fire—Naval gunfire on inland shore targets to support the operation as a whole. It is usually furnished by BB's, CA's, and CL's.

Demonstration—An exhibition of force which may be a feint or a minor attack to deceive the enemy as to the major landing area.

Demonstration group—The vessels assigned to transport and support the troops participating in a demonstration.

Distance—1. The space between adjacent individual ships or boats measured in any direction between foremasts. 2. The space from front to rear between men, animals, vehicles, or units in a formation.

DUKW—A 2½-ton, 6 x 6 truck, capable of operating on both land and water.

DUKW-truck transfer point—A beach installation consisting of revolving cranes at which sling loads are transferred from amphibious trucks into trucks for further movement.

Dunnage—Any material, such as boards, mats, planks, blocks, bamboo, etc., which is used in transportation and storage of supplies to secure and protect them from damage, or for convenience in handling.

Embarkation—The loading of troops with their supplies and equipment into vessels or aircraft.

Embarkation and tonnage table—A form showing the allocation of embarkation groups to transport divisions. It is used to allocate space to all elements of the landing force on ships of the transport group.

Embarkation area—An area ashore, including a group of embarkation points, in which final preparations are completed, and through which troops and matériel for ships and craft are called forward to embark.

Embarkation group—All personnel with their equipment and supplies embarking aboard ships of one transport division; normally an RCT.

Embarkation officer—A Marine Corps or Army officer, usually of the Transportation Corps, who normally is assigned to the staff of the commander of an assault transport and who is responsible for the proper loading and unloading of the ship. He acts as liaison officer between the loading officer and the commander of the ship in all administrative matters. Formerly called transport quartermaster.

Embarkation unit—All personnel with their equipment and supplies embarking on a single ship.

Expeditionary troops—All the troops of all services assigned to a joint expeditionary force for operations on shore, including the landing force, garrison and base troops.

Fire support area—An appropriate station and maneuver area assigned to fire support ships from which to deliver naval gunfire support.

Fire support coordination center—A landing force agency which coordinates naval gunfire, artillery, and air in support of a landing operation.

Fire support group (FSG)—Basic naval unit for the delivery of naval gunfire support.

Flagship—See *AGC*.

Floating dump—A dump of critical supplies held on boats, barges, or landing vehicles established afloat in the vicinity of a control vessel for quick dispatch to assault troops ashore. Also called Offshore Dump.

Follow-up forces—Those forces which are scheduled to arrive in the objective area after the assault and prior to the build-up forces.

Garrison force—All units assigned to a base for defense, development, operation, and maintenance of facilities.

Gross ton—See *Tonnage*.

H-hour—The clock time designated for the first wave of assault troops to land on a designated beach.

Hard—Portion of a beach especially prepared with a hard surface extending into the water, employed for the purpose of loading or unloading vehicles and material directly into or from landing ships and craft.

Headquarters ship—See *AGC*.

Heavy lift cargo—A heavy piece of cargo that requires a heavy-lift crane to raise and lower it.

Hold—A cargo stowage compartment aboard ship.

Horizontal loading—A method of loading whereby items of like character are loaded in horizontal layers through the hold or holds of a ship.

Hydrography—The science of determining the conditions of navigable waters. It includes a study of the contours of the bottom, depths, shoals, channels, tides, currents, obstructions, surf conditions, and other features.

Interval—1. Space between adjacent groups of ships or boats measured in any direction between the corresponding ships or boats in each group. 2. Space between adjacent individuals, vehicles or units in a formation that are placed side by side, measured abreast.

Jaheemy—A large, pneumatic-tired, wheeled salvage vehicle fitted with blocks and tackle, used to lift and move a landing craft out of the water and up onto the beach.

Joint—Pertaining to an organization, operation, or activity in which elements of two or more armed services act together for the accomplishment of a common mission.

Joint attack force—See *Attack force.*

Joint expeditionary force—A joint force organized to undertake an amphibious operation.

Joint communication center—A communication center established for joint use of the Armed Forces.

Joint oversea expedition—An operation undertaken by a joint force dispatched to or within a theater of operations by sea, by sea and air, or by air for the purpose of undertaking amphibious, airborne, or other military operations overseas.

Joint task force—See *Joint expeditionary force.*

Knot—A unit of speed equivalent to one nautical mile (1.15 statute mile) per hour.

Landing area—That part of an objective area which is included in the landing operations of a joint attack force. It includes the beaches and the approaches thereto, transport areas, fire support areas, the air occupied by close supporting aircraft, and the land included in the advance inland to the initial objectives.

Landing craft (LC)—A craft which is especially designed for beaching, unloading or loading, and retracting from the beach. The term generally is applied to nonocean-going vessels of less than 200-foot length designed for landing operations.

Landing craft availability table—A tabulation of all landing craft available to transport troops and matériel ashore. It is prepared by the transport group (squadron) commander and submitted to the landing force commander for planning.

Landing diagram—A graphic representation of the organization of a boat group for landing, showing the waves, number and type of boats in each, the distance between waves expressed in minutes after H-hour, and the formation and interval between boats expressed in yards.

Landing force—A task organization of troops especially trained and equipped to execute an assault landing against a position or positions located to permit their seizure by troops under a single tactical command.

Landing schedule—A schedule which shows the place, hour, and priorities of landing of assault units, and which coordinates the movements of landing craft to the beach to execute the planned scheme of maneuver, and planned supporting naval and air bombardment missions.

Landing ship—A large type assault ship, generally over 200 feet in length, which is designed for long sea voyages and for rapid unloading on a beach.

Landing vehicle—Amphibious vehicles, wheeled, or track-laying vehicles capable of operating on both land and water.

Loading analysis—See *Cargo and loading analysis.*
Long ton—See *Tonnage.*
LCC—Landing craft, control.
LCM—Landing craft, mechanized.
LCVP—Landing craft, vehicle, personnel.
LEX—Navy term for a practice landing exercise.
Line of departure—A suitably marked offshore coordinating line to assist assault landing craft to land on designated beaches at scheduled times.
Line of transfer—See *Transfer line.*
Loading officer (LO)—The troop officer designated to plan and supervise the loading and unloading of troops, equipment, and supplies. Each unit from division down to the BLT has an assigned loading officer.
Loading point—Any location at which ships or landing vessels are loaded with personnel, supplies, and equipment.
Lodgment area—That area, resulting from the consolidation of one or more beachheads, which is the initial base of operations required for the support of extended land operations.
Logistics—Logistics is that branch of administration which embraces the management and provision of supply, evacuation and hospitalization, transportation and service. It envisages getting the right people and the appropriate supplies to the right place at the right time and in the proper condition.
LSD—Landing ship, dock.
LSM—Landing ship, medium.
LST—Landing ship, tank.
LSTH—Landing ship, tank (casualty evacuation).
LSU—Landing ship, utility.

LSV—Landing ship, vehicle.

Main landing—The landing upon which the ultimate success of the operation depends. It envisages the securing of a beachhead from which assault forces can assume the offensive and continue operations inland against an active enemy.

Marker vessel—A vessel which takes accurate station on a designated control point for the control of vessels in the ship-to-shore movement.

Marshalling area—The general area in which marshalling is accomplished. Includes marshalling camp and departure airfield or embarkation area.

Mean sea level (*MSL*)—The average height of the surface of the sea for all states of tide, used as a reference for elevations throughout the United States.

Measurement ton—See *Tonnage.*

Mine group—Task unit of a joint attack force assigned the mission of laying and sweeping mines in the objective area. Elements of the mine group may be attached to the advance force.

Mounting—All preparations made in assembly areas in anticipation of an amphibious operation. It includes the assembly of personnel and matériel in the area, preparation and maintenance, the movement to loading points, and subsequent embarkation into ships and landing craft.

Mounting area—The general locality where assigned forces of an amphibious or airborne expedition, with all their authorized equipment and supplies, are assembled, prepared, and loaded in shipping or aircraft preparatory to an assault operation. A mounting area includes a marshalling area.

Naval gunfire officer (NGO)—An officer on the staff of division or higher landing force unit whose duties include the planning of naval gunfire support of amphibious operations.

Naval gunfire liaison officer (NGLO)—The naval officer in command of the shore fire control party.

Naval platoon—Naval unit assigned to a battalion shore party; often called the beach party. It is commanded by the beachmaster.

Night landing—A landing in which the troops are scheduled to reach their first objective under cover of darkness.

Objective area—A definite geographical area within which is located the objective to be seized or reached by the landing force.

Officer in tactical command (OTC)—In naval terms, the officer charged with tactical control of a formation. He is designated by proper authority to assume tactical command or, in the absence of such designation, he is the senior line officer present.

Offshore dump—See *Floating dump.*

Organizational loading—Troops with their equipment and supplies embarked on the same ship but without regard to the prerequisites of a tactical debarkation.

Pallet—A portable platform, usually 4 by 6 feet, mounted on sled or toboggan runners upon which materials are placed for convenient stowage and handling.

Pontoon, N. L.—Navy lightered pontoon; cube shaped, sheet steel, airtight cell from which pontoon barges and causeways are assembled.

Prearranged fire—Supporting fire for which the fire data is prepared in advance and which is delivered

on a time schedule or on call from the supported troops.

Preparatory fires—Intensive fires delivered on landing beaches and adjacent areas prior to and during the approach of the leading waves of assault troops. It may consist of naval, ground, or air fires.

Primary control vessel—Vessel used by the senior naval officer in control of landing craft for a transport squadron or transport division.

Profile loading diagram—A profile view of a loaded vessel with the itemized list of matériel stowed in the holds indicated in the proper hold spaces. See *Stowage diagram.*

Rail loading—The loading of landing craft (boats) while held in davits before lowering to the water. Also called davit loading.

Reconnaissance group—A task organization of the attack force designated to reconnoiter landing areas prior to D-day. They may also locate enemy naval forces, locate beaches, establish aids to navigation, clear mine fields, select suitable targets for naval gunfire, clear beach approaches of underwater obstacles, etc.

Rendezvous area—The area in which waves of landing craft are formed after being loaded and prior to movement to the line of departure.

Reserve supplies—Supplies accumulated in excess of immediate needs for the purpose of insuring continuity of an adequate supply.

Beach reserves—An accumulation of supplies of all classes established in dumps on the beach; normally 3–5 days of all classes.

Individual reserves—The supplies carried on the soldier, animal, or vehicle for individual use. This usually includes the combat load of ammunition for all weapons in the BLT; usually 1–3 days of all classes.

Initial reserves—Those supplies which are normally unloaded immediately following the assault waves; usually in sufficient quantities to initiate and sustain combat until higher supply installations are established; usually 5–10 days of all classes.

RCT—Regimental combat team; a reinforced infantry regiment organized as a balanced fighting unit of essential arms. The normal ground force ratio is one regiment of infantry, one battalion of field artillery, and one company of engineers. It may have additional attachments of essential arms and service elements.

Reserve force—A subordinate task organization of a joint expeditionary force consisting of the ships carrying the reserve troops, usually formed into a landing force capable of being landed according to the general scheme of maneuver or as the tactical situation dictates.

Resupplies—Supplies shipped to the objective area to be used when needed.

S-day—Sailing date for a scheduled operation.

Salvage group—A naval task organization designated and equipped to rescue personnel and to salvage equipment and matériel.

Scheduled fire—See *Prearranged fire.*

Screening groups—A defensive unit of naval vessels employed to protect the attack force; it consists

of antisubmarine vessels, picket boats, etc., seaward from the transport and fire support areas.

Secondary control vessel—Vessels used by naval boat group and wave commanders, and wave guide officers.

Secondary landing—A landing usually made outside the designated landing area to support, directly or indirectly, the main landing.

Selective loading—Loading of supplies and equipment in cargo vessels so specific items can be discharged on call.

Serial—A group of landing craft (boats) under a single commander and carrying specific elements or units of the landing force which are given a priority for dispatch to the beach, but are not necessarily moved on a time schedule.

Ship ton—See *Tonnage.*

Ship-to-shore movement—The act of debarking troops, their equipment, and supplies from assault shipping into landing craft, landing ships, and amphibian vehicles, and the movement from the rendezvous or transport area to the assigned landing beach.

Shore party—A task organization formed to provide logistic support within a beach support area to landing force units during the early phases of an amphibious operation. Its basic mission is to unload supplies and equipment, provide services and facilities ashore; receive, segregate, and safeguard this matériel; maintain security of the beach support area; evacuate casualties and prisoners of war; and reembark other personnel as directed.

Battalion shore party—The basic shore party unit organized to support a battalion landing team. It may be formed from elements of an engineer shore company or other suitable units and attachments. Sometimes referred to as a shore party team.

Division shore party—A headquarters established to control and coordinate the initial logistic support of an assault infantry division in an amphibious operation. It may be formed from the headquarters of the engineer boat and shore regiment.

Regimental shore party—The shore party organization basically organized to support a regimental combat team. It consists of a command and control headquarters and three battalion shore parties. It may be formed from an engineer shore company with necessary attachments.

Special control vessel—A vessel used by corps and division commanders, boat flotilla commanders, senior beachmasters, and division shore party commanders.

Staging area, amphibious or airborne—A general locality between the mounting or embarkation area and the objective area, through which the expedition, or parts thereof, pass after mounting for refueling, regrouping of ships or units, and for exercise, inspection, and redistribution of troops.

Stevedore—One who works at, or is responsible for, the loading of a vessel in port.

Storage capacity—An evaluation of the physical capacity of ships, activity, or area, normally ex-

pressed in measurement (or weight) tons, cubic feet, square feet, gallons, or barrels.

Stores—In naval usage, this term is sometimes used instead of the term supplies to denote any article or commodity used by a naval ship or station; for example, equipage, consumable supplies, clothing, petroleum products, ammunition, and medical supplies.

Stowage diagram—A schematic drawing of each hatch level showing stowage space for cargo. It may include over-all dimensions, and indicate boom capacity, stanchions, and minimum clearance.

Support craft—Landing craft designed for the use of rockets, mortars, and automatic weapons at close range from seaward, both in support of an assault against enemy-held beaches and of troops continuing the inland attack.

Support group—A task group of naval vessels and craft assigned to furnish naval gunfire support in an amphibious operation. There is usually one support group for each attack force. The support group may consist of two or more support units.

Supporting fires—See *Close support fire* and *Deep support fire.*

Surf—The swell of the sea breaking upon a shore.

Tactical air control party (*TACP*)—An operational component of the land-based Tactical Air Control Group designed to direct aircraft from forward positions. Parties operate at division, regimental, and battalion level.

Task force.—1. A temporary grouping of units under one commander, organized to carry out a specific mission or task. 2. A semipermanent

organization of units under one commander to carry out a specific continuous task.

Task group—A subdivision of a naval task force organized by the commander of the task force to accomplish a specific job related to the main mission; for example, a mine group and a support group.

Task unit—A subdivision of a task group by the commander of the task group to accomplish a specific part or phase of the over-all task group mission.

Tonnage—An expression of cubature or weight used variously to indicate the aggregate of tons shipped, carried, handled, mined, etc.; also to indicate a ship's weight, size, and carrying capacity.

Ton—A unit of volume or weight. Volume: Measurement (ship) ton—40 cubic feet. Weight: Short ton—2,000 pounds; Long ton (weight ton)—2,240 pounds; Metric ton—2,205 pounds (1,000 kilograms).

Deadweight tonnage—The carrying capacity of a ship, expressed in long tons. It is the difference between displacement tonnage loaded and displacement tonnage light.

Deadweight cargo tonnage—The cargo carrying capacity, expressed in long tons. It is the part of the deadweight tonnage of the vessel which remains after deducting the weight of fuel, water, stores, dunnage, and other voyage items. Also known as Cargo Capacity Tonnage.

Displacement tonnage—The weight of the ship expressed in long tons. Light—total weight

of the ship excluding the weight of cargo, passengers, fuel, water, stores, dunnage, etc. Loaded—total weight including all those items listed above.

Gross tonnage—Total internal cubic capacity of a ship expressed in tons of 100 cubic feet capacity.

Tractor group—A term sometimes used to designate a group of landing ships which carry the amphibian vehicles of a landing force.

Transfer area (line)—The water area (line) in (at) which the transfer of troops and supplies from landing craft to amphibian vehicles is effected.

Transport—A ship primarily used to transport personnel. See AP; APA.

Transport area—The sea area designated as station area for transports for debarkation.

Transport Division (Transdiv)—The attack transports (APA's) and attack cargo ships (AKA's) required to carry personnel, equipment, and supplies of one regimental combat team.

Transport group (Transgroup)—A subdivision of an attack force consisting of assault shipping and, when attached, its protective and service units, organized to embark, transport, and land the troops, equipment, and supplies of the landing force.

Transport squadron (Transron)—Two or more transport divisions organized to carry a reinforced infantry division.

Underwater demolition unit—A naval unit organized and equipped to perform beach reconnaissance and underwater demolition missions in the landing area.

Unit personnel and tonnage table (*UP&T table*)—A table prepared by each unit or attachment aboard a transport showing total personnel, the cubic measurements and weights of each class of matériel; and number, size, and weight of each type of vehicle to be embarked.

Vessel—Any type of water craft larger than a rowboat.

Vehicle debarkation priority table—A consolidated list of all vehicles of a command listed by priority of unloading according to the tactical plan. It shows the type, cubage, number of containers of cargo loaded on each vehicle, and the stowage place of each.

Wave (*boat*)—See *Boat wave.*

APPENDIX X

GLOSSARY OF NAUTICAL TERMS

Abaft—In the direction of the stern.

Aboard—On a ship or boat.

Aft—Near the stern of a vessel; towards the rear.

Amidships (*'midships*)—In the center of the vessel, either with reference to her length or to her breadth.

Astern—Aft of or behind the rear of a vessel.

Athwartships—At right angles to the fore-and-aft lines of the vessel.

Awash—The deck when even with the surface of the water.

Ballast—Any weight carried to make a vessel more stable.

Barge—A ship's boat designated for the use of flag officers.

Between decks (*'tween decks*)—The space between any two decks of a ship.

Beam—Extreme width of a vessel.

Below—Underneath the deck (floor) of a vessel.

Bilge—The curved part of a ship's hull where the sides and the flat bottom meet.

Bitts—Vertical wooden or metal projections on the deck used for securing lines or gear.

Boat boom—The boom swung out from a ship's side when at anchor and to which boats in the water secure.

Boat hook—A wooden staff with a metal hook at one end used for fending off or holding on.

Boatswain (Bos'n)—An officer aboard ship who has charge of the rigging and who calls the crew to duty.

Booby-hatch—A raised small hatch.

Bow—Forward-most part of a vessel.

Bridge—The raised platform extending athwart a ships in the forward part of the ship and from which it is steered and navigated. Amidships and after bridges are sometimes so fitted.

Brig—The ship's prison. A square rigged vessel with two masts. An hermaphrodite brig is rigged on the foremast like a brig and on the mainmast like a schooner.

Broached—A boat or craft washed by surf action up on the beach and unable to retract under its own power.

Bulkhead—Transverse or longitudinal partitions (walls) separating portions of the ship.

Bunk—Bed on board ship.

Call—The Boatswain's pipe (whistle).

Cargo hatch—A hatch over a cargo hold.

Carry away—To break or tear loose.

Cleat—A fitting of wood or metal with projections, used for securing lines.

Colors—The national ensign.

Companionway—The steps leading below from the upper deck.

Davit—A curved metal spar fitting into a socket on the deck and projecting over the side for handling a boat.

Dead ahead—Directly ahead.

Dead reckoning—A navigator's reckoning with courses steered and distances run independent of sights or bearings.

Deck—The floor of all parts of the vessel which rest upon the beams.

Derelict—A vessel abandoned and drifting aimlessly at sea.

Dip (*colors*)—The temporary lowering of the ensign part way down in the process of saluting or returning a salute of another vessel.

Draft—The depth to which a vessel sinks in the water.

Dunnage—Loose material placed in the holds of a ship for the cargo to rest on, or jammed between the cargo to wedge it.

Ease off—To slack up.

Ensign—The flag carried by a vessel as the insignia of her nationality.

Fall—That part of tackle to which the power is applied in hoisting.

Fantail—The part of the stern of a vessel extending abaft the sternpost.

Fathom—Six feet.

Fender—Canvas, wood, or rope used over the side to protect a vessel from scraping when alongside another vessel or a dock.

Fore—Term used to distinguish the forward part of a vessel, or parts forward of amidships.

Forecastle (*focsle*)—The upper deck forward of the foremast.

Foul—Jammed, not clear.

Galley—The ship's kitchen.

Gangway—An exit or entrance into a ship by means of an adjustable ladder (steps); also means clear the way or step aside.

Gear—The general name for ropes, blocks and tackles, or sail, or for personal equipment.

Gig—A ship's boat designated for the use of the commanding officer of the ship.

Gunwale (*gunnel*)—The upper rail of a boat or vessel.

Gyro compass—A compass consisting of a rapidly spinning rotor so swung as to maintain its axis in the geographical meridian and pointing to the true North.

Hand-rope—A line secured waist high above a boat-boom or gangplank; used for steadying oneself. (Also termed grab rope.)

Hard-over—An order to put the wheel or tiller as far over to the side designated as possible.

Hawser—A large rope for towing, mooring, or heavy work.

Head—Latrine, washroom, and toilet facilities.

Heaving line—A small line secured to a heavier line or cable and thrown to an approaching vessel or to a dock to pull in the heavier line.

Heave to—To put a vessel in the position of lying-to.

Helm—The tiller. The machinery by which a vessel is steered.

Hoist away—An order to haul up.

Hold—The cargo space below the deck of a vessel.

Inboard—Toward the center line of the ship.

Inshore—Toward shore.

Jack—A flag similar to the union of the national flag.

Jacob's ladder—A ladder of rope with wooden steps used over the side and aloft.

Keel—The timber or bar forming the backbone of the vessel and running from the stem to the stern post at the bottom of the ship.

Knock off—To stop; especially to stop work.

Knot—A measure of speed; one nautical mile per hour. A nautical mile is 6,080 feet, a land mile is 5,280 feet.

Lanyard—A rope made fast (tied) to an article for securing it; for example, knife lanyard and bucket lanyard; or for setting up rigging.

Lee—The side opposite to that from which the wind blows.

Let go—To release.

Leeward—Away from the wind.

Life-line—A line secured around the side of the ship above the deck to prevent persons from falling overboard.

Lighter—A craft used in loading and unloading vessels.

List—The inclination or deviation of a vessel (not caused by wind or sea) from an upright position.

Log line—An apparatus for measuring the speed of a vessel in the water.

Magazine—The space provided for the stowage of explosives.

Make fast—To tie securely.

Make colors—Hoisting the ensign at 0800.

Make sunset—Lowering the colors at sunset.

Mess—Any number of men who eat or lodge together.

Mile—A nautical mile is one-sixtieth of a degree of latitude, generally 6,080 feet.

Mooring—A term applied to the operation of securing a vessel to a wharf or dock.

Muster—To assemble the crew.

Officer of the deck—The officer on watch in charge of the ship.

On the beam—Same as abeam or abreast.

Outboard—Toward the sides of the vessel.

Painter—A small rope or line attached to the bows of a boat, used for making her fast.

Pay out—To slack away on a line or cable.

Poop deck—A partial deck at the stern above the main deck.

Port—The left side of a vessel when facing the bow.

Prow—The part of the bow above the water.

Quarter—That part of the vessel's sides near the stern.

Retract—To refloat a landing craft or ship by backing off the beach.

Ribs—The framework of a vessel.

Screw—The propeller.

Scuppers—Holes cut in the waterways to drain water from the decks.

Seuttle butt—Drinking water fountain or facilities.

Secure—To make fast; safe.

Set the wateh—Strictly speaking, to divide a ship's company into watches. The order at 2000 on a man-of-war to station the first watch.

Shore—To prop up. A prop or stanchion, placed under a beam.

Shove off—To leave; an order to the bowman to shove the bow clear preparatory to leaving a dock or a vessel's side.

Sick bay—Ship's hospital.

Slack away—To let out or pay out a rope, line, or hawser.

Sling—To set in ropes, so as to put on a tackle to hoist or lower it.

Sounding—Measuring the depth of the water.

Stanchions—Upright posts of wood or iron; placed so as to support the beams of a vessel. Upright pieces placed at intervals along the sides of a vessel, to support the bulwarks and rail, and reaching down to the bands by the side of the pieces to which they are bolted; any fixed upright support.

Stand by—A preparatory order.

Starboard—The right side of a vessel when facing the bow.

Stern—The rearmost part of a vessel.

Stern fast—(Stern line) a rope led over the stern of a boat and used in securing her by the stern.

Stove—Broken in or damaged.

Stow—To put in place.

Take a turn—To pass a turn around a belaying pin or cleat and hold on.

Topside—Above decks.

Trough—The hollow between two waves.

Turn—Passing a rope around a pin or kevel to keep it fast.

Turn to—An order to begin ship's work.

Under way—Having way or progress; a moving vessel.

Ventilator—A wooden or metal pipe used to supply or exhaust.

Veer—To change direction.

Wake—The disturbed water left behind a moving vessel.

Wardroom—Commissioned officers' mess.

Watch—A division of time on board ship. There are seven watches in a day, from 1200 through the 24 hours. They consist of 5 regular 4-hour watches and 2 "dog watches." A certain portion of the ship's company appointed to stand these watches are known as the "watch." A buoy is said to watch when it floats on the surface.

Waterlogged—A vessel full of water but still afloat.

Weather—To windward, or exposed.

Winch—A purchase formed by a horizontal spindle or shaft with a wheel or crank at the end.

Windward—Toward the wind.

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